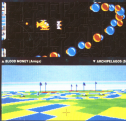


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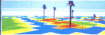
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BLOOD MONEY



ARCHIPELAGOS



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 **DELUXE PAINT III.....60**



 **ANIMATION TUTORIAL.....68**

FLIGHT OF FANTASY.....12

The Format crew take to the skies without leaving their seats. The answer to this apparent riddle is the flight simulator. From £30 games to multi-million pound professional training simulators, Format flies the lot.



ALL CHANGE

Over the last few months you'll have noticed a startling change in ST Armitage Format - it's so big! You may also have noticed other alterations: meanwhile Editor Ben Taylor has been promoted to Systems Manager (which means he gets to tinker with Mac Playmate all day!) and I have moved into his hot seat; Stuart Anderson has joined the Format crew as Production Editor (as well as being a whiz with words and DTP systems, he's an experienced philologist); the layout has been given an overhaul by art supreme Gordon Bruce. Flick through the issue - I'm sure you'll agree, it's a cracker!

R. Montaine

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ST

Archipelagos - playable demo of Logotron's *Farad* (GSM-4560) game; **Asphy 3** - sampling software for STX project; **Codem** - search your call music; **Playme 7** - latest release of the file compression utility; **Fastmouse** - speeds up mouse operation.

AMIGA

Band Money - fast and furious playable demo of Pyramide's shoot-em-up; **Diskit** - disk utility; **Jetkey** - keyboard editor for customizing keyboard layout; **Playme** - nondestructive version of Comnet 8 game; **File Requester** - add requester to programs.



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ST AMIGA FORMAT (ONLY A NEW IFF) ARC LISTS END TO DECEMBER 1988

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FLY THE WORLD WITH THE AMIGA — PLAY THE ATARI GAME



MONTEIRO'S MONTH

Finds out who tried to play the playable demo of Zak McKracken last month. Don't get very far, did you? That's too left playable. Yes, I know it said 'playable' on the cover, on the disk label, in the contents and in the disk pages (several times). We. We screwed up.

Well, it wasn't actually our fault. Format, Zak McKracken is being distributed in the country by US Gold, the designers and programmers, however, as Lucasfilm in the States, US Gold agreed to run a demo on our disk. They had to contact Lucasfilm and tell them exactly what we wanted and when we wanted it — a 200K playable demo of Zak as soon as possible. Somewhere along the way, the communication line was severed. It wasn't until all our colour pages had been sent to the printer that the demo arrived by Federal Express. And, as you know, what an art was not what we wanted.

We did test on our back page that things might go wrong, the last thing we heard before receiving the demo was that Lucasfilm were going to attempt to send it to US Gold down the telephone line.

Anyway, its sure you'll be more than satisfied with the program on the disk this month. Playable demos of both our Format Gold games. On the ST side there's two levels of the amazingly addictive Archangel, while on the Amiga side there's 20 screens of Blood Money. You can't complain about that!

R. Monteiro

BUNDLING DEALS TAKE OFF

Both Atari and Commodore have revealed that new bundling deals on the lower end 512K machines are afoot.

Buy an Amiga and see the world. Commodore's bundling deal on the 4000 is more than the usual lot of games: it includes 500 Air Miles. The Air Miles deal allows you free passage on flights all over the planet if you collect enough — and 500 will comfortably get you to European cities like Paris or Amsterdam. Or you could collect more — many high street stores offer them like Sainsbury (Shield stamps) — and take an international journey.

The rest of the 4899 package is a TV modulator, the Sprint paint program and three games: Roger Rabbit, Akabutsu and Starflyer.

Atari are refusing to elaborate on their plans for a revamp of the 4899 500K11M games bundle, but start toppers like Out Run, Gauntlet II, Afterburner, Predator, Space Harrier, Eliminator, and StarCannon are considered likely to be included.

Games editors are also being cagey about their involvement in the deal, which Atari's Bob Gledhill said would produce a pack which "will be as strong if it will still be attractive next Christmas."



High tech, then high — visit Peter's Photomicro Centre with your Amiga's free Air Miles



Sensational news for Dragon's Lair fans: it's coming out on the ST. Ready2fly in the States are currently working on a surprise as it was claimed by Entertainment International — UK distributors of the Amiga version — that there would be no ST translation.

We will early days and Ready2fly aren't committing themselves to a release date or to a UK supplier. The Amiga version comes on six disks; how many will the ST's come on? Remember that Amiga disks store 800K, and single sided ST disks manage around 360K. Surely the ST version won't come on 12 disks? Ready2fly aren't saying anything at this stage. It's certainly going to be interesting to see what appears.

Dragon's Lair has already appeared on the ST in video disc format. Early last year Microdeal arranged a scheme whereby owners of a special video disc player could buy the Dragon's Lair disc and control the game from the ST. The laser disc player required its own translation while the ST needed to be connected to the ST's extension. All advantages in the scheme, mention would stop and your ST's screen would report you to press a key to go left or right, draw your sword or go on. Microdeal have dropped the product.

DRAGON'S LAIR ON THE WAY FOR ST

QUICKIES

■ An improved version of Sprite Master for the ST has been released by Soft disk 010 036 25.036. It enables objects to float and has improved circle routines. Existing users can upgrade to version 1.3 by restoring their original disk with a stamp to cover patches.

■ Amiga-Care is a comprehensive support package which has been launched by Burnham Graphic Design of Harrow 0181-907 36366.

It works on the principle of buying 'units' which can be exchanged for services — one unit for a technical report, 10 units an hour for simple call out and so on. You can also use units to buy insurance.

■ Language specialists HSGit 02075 718181 are importing Data Pacific's Spectre 128 Apple Mac emulator. The advantage this emulator has over others is that Mac disks can be read and written by the ST.

MORE QUICKIES

■ **Intelligent Music's Realtime** responder for the ST is now available from 02043 28 000-1724 41341. It can handle 256 sounds and you add in real time - hence the name. It costs £299. Also for the ST from 0203 612 71 **OrchestraWriter**, a sound database which allows you to sort through thousands of sounds. You can also merge and merge sounds.

■ A collection of fancy borders for graphics and BPS applications is on sale from Electric Distribution (0450 404664). **Border Packs** contains 43 patterns in GEM Metatype format on ST-format disk for £29.95.

■ You can transfer your favourite 32mm slides and prints to Amiga disks. **Jonathan Beckmore** has the capacities on 0900 715325.

■ You would have thought Audiatalk were the last people who would want to trace their ancestor's but it would appear not - a new program for the Amiga called **GENP** is designed to help them discover which one they were descended on. It is a genealogical database with facilities to display "background charts", GENP costs 150 Australian dollars, plus post and packing from Genealogical Processing, 37 Charles Street, Cheltenham, Victoria 3192, Australia.

■ Database's latest piece of educational software, **Fun School 2**, is now available on the ST and Amiga. The program has three 64-level versions for under ones, up to eight-year olds, and over eight. Database are on 0623 876660.

■ **Budget UK** are a small band of unpaid games programmers who put their work into the public domain. They have 25 ST games on offer from the usual PC distributors. Contact Simon Bush at Budget at 41 Park Road, Reading, Essex SS8 8SS.

■ **Trilogic** 02074 899 315 have brought out a stereo digitiser for the Amiga. It plugs into the head phone socket of your PC and is fully compatible with Audiovision, Perfect Sound, and Prosound. The digitiser costs £37.99, and you can buy it with Prosound for

A HARD DISK FOR UNDER £300

Tempest Computers are offering to make up hard disks in order for the ST and Amiga. They reckon to supply disks of any capacity and export prices, to start at under £300. That's an impressive goal considering the cheapest harddisk on the market is Third Coast's 20Mg ST drive - even that costs £399.

Gary Drake, Tempest's technical sales manager, said: "There is no reason for hard disks for the ST and Amiga to cost so much. I can supply PC compatible 30 or 20Mbyte disks for under a third of the price of ST or Amiga drives. Manufacturers know users will pay inflated prices, we hope to put an end to that and release prices of sensible prices."

■ **Tempest, 203 Mount, 140 Maple Hill Road, Philadelphia, Texas, 8119 546 0670 874668.**

UPGRADE FOR HACKER'S SIDEKICK

Less than two weeks after the announcement of the ST Multiface 1.4, Benford's Robot have started shipping version 2. The latest Multiface 2 is claimed, will stop all software. Once stopped, memory can be viewed or edited and is transferable to RAM based to disk. Most unpatched software can then be reloaded and continued from the point at which it was halted. Not all can be restored though.

What makes the Multiface different from other copyprotection devices is that the hardware chipset must be attached for memory snapshots to reload and exclude correctly.

Along with an improved success rate, the version 2 Disk Organizer can update £30 disk

utility program on ROM that sits beside the Multiface ROM software can be called from anywhere with the Multiface menu, has a better portout option and can cope with wildcards.

A bug which prevented the Multiface working with Mega ST4s has also been fixed. The reason the device didn't work, it turns out, is the same reason that much software fails down on the latest Mega machine: the software tried to read or write beyond the 64Kbyte limit.

A disassembler ROM, which will let you disassemble basically enough native programs, is nearing completion. This will let you back up £1.95 when it's finished.

The Amiga version of the Multiface will be expected for users' months.

■ **Benford's Robot, 34 Deansmill Ave, London, W9P 8BN 093-280 8470.**

GET GAMES TAPED

For that Entertainment have come up with a new way of checking out the latest games releases - a video tape. Every other month they will publish a tape with would last an hour of highlights from games currently under development and expected to be released in the coming few weeks.

The videos - which will cost £5.49 each - will feature a presenter in teleprompted TV fashion. The presenter will comment on the games as they are played.

The 16th Annual Tapes will feature Atari ST, Amiga, C64, Spectrum and Amstrad CPC games. The first tape goes on sale on April 28 and will be available from all good software retailers.

FLAIR DEAL



■ **AMT** will receive ST painting package **Flair Paint** has been taken over by Bellhouse Software, who will continue to sell it at £24.95 under their own name. Bellhouse have acquired most of the AMT group after AMT parent company, Langdon, decided to rebrand their products. Chris Payton of Bellhouse said that Flair Paint would fit in well with Bellhouse's ST range.

MORE QUICKIES

ATARI MAKE BRITISH DEAL ON CALAMUS DTP

BUT GREY IMPORTERS ARE SET TO MAKE A KILLING

Contrary to news stories in several magazines, BMC Germany are not at odds with Atari UK over the handling of the monster DTP package Calamus. Rumours erupted after Signa Publishing announced that they were to take over the distribution of Calamus in this country. This revelation strengthened industry pundits' assumption that BMC are unhappy with Atari because of the delay in the package's launch in the UK.

Leo Payer, Atari's technical manager, put the record straight: "Yes, Atari UK are sitting on Calamus, but that's because the original version is so badly bugged that as far as I'm right to release it in that condition. Consequently it is being rewritten for the UK market. Atari are publishing Calamus which means it will have an Atari label. Signa will be distributing the product - and hopefully providing excellent support - for us."

The official launch date for Calamus is the end of



"It's good at making headlines"

April, but that's about all that is concrete. Proposed price is £295 plus £150 for every extra font required - although

neither Signa or Atari were willing to confirm this.

It is possible to get hold of a grey import of

Calamus from Gaietta. The price is £295 which compares favourably to the Atari-quoted tag of £395. However, don't get too excited because it transpires that the American version won't work on UK STs and, claim Atari, the US version is badly bugged. The reason for the US version not working on UK machines, it seems, is not because of poorly written code that accesses the ROM, but a protection mechanism that checks to see if the machine is of US origin. If the computer isn't from the States then the software refuses to work. Gaietta are currently working on the problem and promise to have a solution by the time you read this.

■ Signa Publishing (official UK distributor) - Trocadero House, 15/16/17 Old Lane, Farnham, Surrey, GU11 3JH (0247 633000).

■ Gaietta (grey imports) - One One, One of 7 Wellington Road, Farnham, Surrey, GU11 3AR (0247 633000).



AMIGA KEEPS TAKING THE TABLETS

A graphics tablet designed specifically for the Amiga is being imported from Germany by Mercare Graphics Design 220-207 0205. The GMP tablet comes in two versions: one 64, the other twice the size (128). Mercare claim the tablet to be compatible with all leading Amiga (286, 386) point and layout software. The tough surface of the tablet is software resistant and you can either use horizontal or vertical axes. GMP comes with a pen in quick to available as an optional extra. The 64 version costs £245, with the 128 model weighing in at £364. The goods in an order 248.

HOW STRANGE IS MY SOFTWARE?

OK, so you use your Amiga for playing games, but what else?

The odd letter or two maybe? Come on now, you're not lying, there must be something unusual for when you switch on your machine, and we want to know about it.

Commodore are offering equipment to the value of £500 to the reader who has the weirdest, strangest, most innovative use of an Amiga in the home.

The competition will be tough - for instance an owner of one Amiga owner who uses, for

instance to work out the menu, for his pet dog.

The winner will be chosen at the Commodore show in London in June. The best entries will be asked to demonstrate their innovations, at the show is the Festival in Harrogate.

To enter, write a brief description of your own peculiar use of a computer - 500 words or so - and send it with any support materials on disk to Commodore Competition, ST Amiga Annual, 4 Queen Street, Bath BA2 1EL.

WIN £500-WORTH OF GEAR FOR THE MOST ORIGINAL USE OF AN AMIGA



COMPUTIN' USA



Aid Amiga amigos assembled at the Marriott Marquis, New York, to wander around and witness the recent AmiEXPO show. It was a record attendance as TONY THOMPSON reports.

There were more than 90 exhibitors at the New York show; Saturday's event was so crowded it was difficult to move around the small exhibition hall. The big turnout (over 12,000) was an interesting contrast to the 7000 or so visitors at the October 1988 show in Los Angeles. Naturally there were enough new products to available to satisfy the curiosity of the crowd in New York.

Surprisingly Commodore wasn't at the show. However, one visitor was spotted with a Commodore badge. He had an unforgotten tale.

ASOC of 925 Broadway Street, Madison WI 53703-5893, called a press conference to announce a \$300 colour separation ability for use with Professional ScanLab and Professional Page. The importance of their ability is that it enables publishers to produce professional quality colour separations on the Amiga at a fourth the cost of usual methods. ASOC-8520P was designed in co-operation with Gold Disk and is a conversion utility that can be used with Professional Page, Professional ScanLab, or Amiga 2080, and either a 24-bit or 24-bit colour scanner from Sharp. A similar setup was used in an AmigaTimes page illustration that showed some of the amazing detail created with computer art.

With ASOC, an image is saved as both a HAM image and a 16 million colour image. The HAM image is used in Professional Page for composition and proofing purposes, when layout is complete, the Professional Page file is colour-separated and saved as a PostScript file. ASOC-8520P is then used to replace the HAM images in the PostScript file with the 24-bit colour separation performed in ScanLab. The final file

can be taken to companies which produce the colour film separations, used in the printing process. ASOC-8520P costs \$399.95 while ScanLab weighs in at \$4995.

ASOC also announced its 5294 Dual Serial Board, a hardware/software combination that provides multiple RS232C serial ports on the 40080. It allows running of three or more serial devices at a time and comes with a disk containing a high speed driver and handler.

The device is a dedicated

board made up of two 43 computer-unique connectors. It occupies a single expansion slot on the 2080 and doesn't get in the way of the original serial port.

Dr Deede and his wife bought at Computo-Save, after having been banned from earlier Expos, were re-admitted. There were no rubber chickens fertilizing the booth. In the past, the humour of the Computo-Save group - poking fun at computer home buyers and such - did not go down well with many visitors.

New from Gamma is Mag Plus 3.0 at \$99. There's also Fast the speedster; this 590 software stores phone numbers which can then be dialed with a one-click, search-and-dial function. Richard Stockton, author of Mag betch up to now has been shrewd. Look at great lengths about the problems associated with the payment for shareware programs. In all the years he has been writing, he has never received a single penny from any users in the UK but very encouraging. Gamma Software are on 0181 308 3834/12.

A portable Amiga is made by The Journeyman; a prototype, was shown which consisted mostly of an Amiga's innards packed in a suitcase with a small monochrome monitor.

It's not a laptop; it weighs 28 pounds and has no internal power source. It plugs in when you arrive where you're going.

Amic Publishing Inc. showed the premiere issue of their Amiga Plus magazine. It comes with an optional disk and costs an inflated \$15 an issue. Unsurprisingly there were not many takers!

Amic Publishing, 144 2nd St, San Francisco, CA 94107 0302 1 800 751-0080.

A QUICK TOUR OF THE SHOW...

■ **Dyn's PC Scan** has been converted to run on the Amiga by C Ltd. It costs about \$2750 and lets you feed in a sheet of 800 material which is then changed to text in your system. C Ltd, 213 E. Service, Wichita, KS 67211 0310 1 316 2573807

■ **CompuShare Speculations** demonstrated a **Hyper-MMS** compatible graphics system. Details from 690 Cabot Ct, Hayslage, TN 37056 0303 1 615 2734034.

■ **New from Centaur Software**, 14040 Telford Way, Ste 526, Marina del Rey, CA 90292 0303 1 213 8223995 is **MyPaint**, a fully functional paint program for children. There are some nice animated action figures, a 26-picture colouring book and ten painted words related to the pictures.

■ **Dr T's Music Software Inc.**, 270 Highland Street, Box 285, Orem UT, MO 02167 0303 1 607 2440754. Or show over **Dr T KOL V1.0a, MMS** and the **Composer**.

The **Composer** is a score-writing, transcription and printing program for music. It will transcribe sequence data files into treble, bass, alto and percussion staves. Comes in Professional and DTP versions.

■ **Intuition** at \$100 allows instant capture, processing and display of video images. Coupled with the Laszlo frame grabber from A2-Quorum, the Intuition system lets you assign effects to keys so you can

play effects into a moving video. Some of the effects: mirror, distort, mosaic, Dither, colorize, grayscale, invert and superimpose. (San Diego Co, POB 87725, San Francisco, CA 94131 0310 1 415 8218873).

■ **Impulse** have entered the 3D market with their version of the Turbo Silver software to include stereo vision using 3D shuttered glasses. Renderings can now be made for 3D images, and the product has been named **Turbo Silver 3D**. The software is \$395, or \$595 with shutter-lens, or \$700 with the shutter-lens and Mega glasses. Impulse, 5875 Simple Creek Pkwy, Ste 512, Minneapolis, MN 55436 0303 1 612 5560020.

■ **Hammy** is for people who can't play a musical instrument. With the included metronome, you can turn-on song and the music can be edited and even adapted to instruments. Price a \$295. Intecore Development Systems, 24 Bruce Dr, South Plainfield, NY 07075 0303 1 914 984 5455.

■ **WinShare International** introduced **ProShare** which allows MIDI events and computer animation to be synchronized. It works with computer graphic events and digitized sound samples.

ProShare costs \$295 and will work with two other Multimedia products (Page Ripper Plus V2 and PageRipper 3D). A 60% version of the latter will ship \$199 and is scheduled to be released soon.



Spring Fever



The un-usually warm weather must have affected our senses! Just take a look at the very special deals we are offering ST/Amiga Format readers - all these special prices are exclusive to

ST/Amiga Format magazine and are strictly limited. These offers end on 31 May 1989, are subject to availability and you must use the coupon below when ordering.



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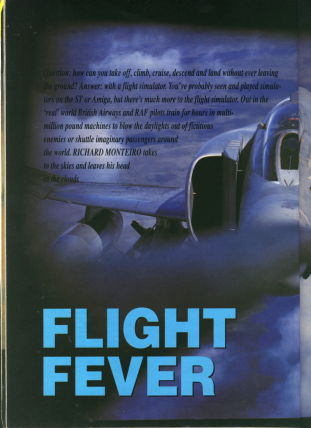
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SMART 2 shell	£20.00

New Releases - Atari ST

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HiSoft C Interpreter/Source/Linking C	£49.95

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A large commercial airplane, likely a Boeing 747, is shown from a low angle, flying through dark, dramatic clouds. The aircraft's four engines and upper fuselage are visible. The lighting is moody, with highlights on the clouds and the plane's body.

Question: how can you take off, climb, cruise, descend and land without ever leaving the ground? Answer: with a flight simulator. You've probably seen and played simulators on the ST or Amiga, but there's much more to the flight simulator. Out in the 'real' world British Airways and RAF pilots train for hours in multi-million pound machines to blow the daylight's out of fictitious enemies or shuttle imaginary passengers around the world. RICHARD MONTEIRO takes to the skies and leaves his head in the clouds

FLIGHT FEVER



■ So you think the custom video circuitry inside the SP and Raptor is good? More than ample for the requirements of a flight simulator, say? Well they are capable machines, but a little lacking when compared to RealFlight's SP-X 500 hardware. The picture below is typical of the system's capabilities. Note the staggering illusion of depth and perspective.

■ Inside a professional R-18 Fighting Falcon aircraft simulator (right) and (left) the Spectrum HobbySystems-based version on the PC. While pilots don't push-pull micro-based flight simulators, they reckon there's a big difference between where flight simulation and dedicated simulators. The biggest disparity is the method of control. Keys and joysticks are a poor substitute for real aircraft controls. Also real-world hazards like turbulence, fog and snow aren't properly implemented in the home simulator. On the plus side, home video simulators have you to read the instruments which - say the professionals - is imperative for control.





Lined made an enormous leap, standing up slowly, hydraulic legs. These legs contract and expand depending on the conditions inside the cockpit. He was taking serious Arcade games. The Afterburner and Thunderblade have a long, long way to go before they overtake him.

From the outside these professional simulators look like something out of a tech adventure. Inside, the realism defies belief. Even that undeniable aircraft smell is there. It's uncanny, so much so that many pilots claim that it's all too easy to forget that you're anchored to the ground.

The ministry doesn't stop there. There's the show of the engine, the feeling of acceleration and the slight bumps so typical of an overage. It all adds up to one hell of an *flavour*; something Ford Connectors® would be proud of.

Abstract

Many two- and professional simulators enhance the illusion of reality by making use of sophisticated computer-generated scenes that are constantly updated as the flight proceeds. These synthesized visual masterpieces are either generated beforehand, and then projected onto an aircraft windshield or screen, when

[illegible]

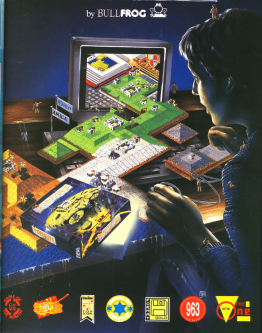
■ **FILED** Jan. 20, 2009. Circulation 10000. where was the Massachusetts, Worcester, second before a January 2009-25 flagger was given red of the way by a 1000 Mass. 1-24. Tension. The picture shows a composite enhanced image taken from the vehicle video recorder of the last P-10 Thermal. (Caption above that the 2009, was removed and

South Open and United Nations members. The American Economic Institute of American Military School on the road of life. The English occurred towards the second year in 1914. John F. Kennedy (1914-1978), speaking in international circles, in the Washington was approached by him while in a "Northwest" manner. The next is Henry.



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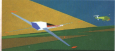
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ELCTRONIC ARTS[®]



This is what the IBM® Flight Simulator looks like. Imagine it running at 20 frames a second! It's the most processing power to do that - a feat of little wit do. The simulator is the instrumental of Steve Glass who was inspired by the Lockheed/Boeing aim in the States. Together with some associate Polaris responsible for the 3D graphics and shading routines, Glass managed to put together a working version after just two weeks.

What's fancy graphics worth here already (even used to show off this APM card)? It's worth something you'll be seeing a lot more of.



needed, as is explained. Millions of people make up the industry paying which can be anything from a penny to 10p and almost. There is no estimate when the major internet study eventually - including companies, individuals and a number

The machine that every computer-aided designer of flying, though, is Concordo Simulair, one of the first players of Concordo (the other being Simulair in France) and consequently it is, like - at Alcatel - that the Simulair Concordo simulator unit. Recently, the simulator has had a 42.2 micron laser beam. Most of the money went into the installation of a new IBM computer-generated model system. It needed in the original Concordo system, built in 1975, for a video camera coming over a model projected onto the screen. As the control, controls of the Rube stock was

In its place is Realigence Circulation's **Flowcam SP4500HF**, which generates images suitable for its SuperWide screen. The screen covers an area of 150 degrees horizontally by 40 degrees vertically. Not only does the image many real-time images, but all animal sizes.

So much for what's going on in the real world at present. The future of flight is, however, uncertain. Not only for the future, but for the present. The flight deck, with its screens that bring the world into the cockpit, is no virtual display, as it seems, where the pilot wears an invisible helmet which prevents him from seeing the real world. A computer image of the outside, along with the plane's status, is projected on the inside of the helmet. This is done so that the pilot can be seated in a comfortable position to maximize the chances of a landing during high-G turns. Of course, the only way to test such an idea is to

And the next stage? Fully self-
pilot-controlled planes. Make the pilot
redundant and there won't be a need for
pilot. Then software houses would have
to find something else to simulate. ■

Because modern fighter aircraft still rely on the need for good physical fitness caused by extreme gravitational forces of high speed maneuvering, the cockpit of the future will be smaller and feature reclining seats, reducing the strain on the spine and neck.

Hand visual display systems are currently being researched. In concept, handworn would give the pilot a computer image of the external world and the aircraft's internal systems.

In the picture, the longitudinal stress profile (marked and bolded) is visible on the aircraft fuselage (the longitudinal stress) while instruments show the aircraft status. The propellant flow path of the aircraft is shown as a winding road in the middle. Red designates critically forces. A red arrow straight is surrounded by a yellow bar (the critical aircraft are seen by the left arrow) and a yellow bar (the critical aircraft are seen by the right arrow).

The gravitational stress placed on lighter parts of the moment is phenomenon by the time these visual displays come into use, even more stress will have to be endured. What will it cost? One theory currently doing the rounds is sufficient space.



MIXING

Business

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EDUCATION

Commodore computer show

Britain's brightest event for Commodore computer users is back! And there's more to see than ever before.

This show has three main themes covering some of the major areas to which Commodore machines are put. There are over 10 key companies who will be exhibiting their latest products, which means that just about everything that's new in the Commodore world will be on show!

Business

Many companies will be demonstrating their latest software and hardware, specially designed to release the full business potential of Commodore computers.

As well as products for the C64 and Amiga series, you'll be able to try out applications for the price-leading Commodore PC compatible micros.

And you'll also be able to attend seminars covering all aspects of using Commodore micros in your business.

Leisure

The C64 and Amiga computers are the most powerful 4 and 16 bit micros for producing fast-action arcade style games. The range of new software on show

will demonstrate how these machines' power is continually being stretched, producing faster and even more addictive games with superb graphics.

If you're a keen game player, you'll find there's so much on offer at the show you're guaranteed a real treat!

Education

Commodore micros are now used as educational tools all over the country. With the development of BBC Basic on the Amiga, and the advent of Desktop 6400 combining TV pictures with text and graphics, the range of educational applications is endless.

At the show you'll see how the latest software

packages are making real breakthroughs in the educational sector, and be able to try them out for yourself.

Special Events

As well as special events and presentations, you'll also be able to meet some of your favourite celebrities, and maybe get a chance to talk with them about how they use micros in their work.

So for a great day out, whether you want to see what the future holds for Commodore computers, to try the latest software or to get advice on specific applications, the Commodore show is the place to go. And if you send in the coupon today, we'll knock £1 off the price of each ticket!

For the first time we are offering a family ticket for just £11 allowing entry for two adults and two children - saving up to £7 off the usual entry price!

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*AMIGA 2 DISKS



Two months marks a major milestone in Amiga history in the US. It seems that sales numbers of the Amiga outstripping the Atari ST are true. As of March, Commodore has announced that it had 5,000 stores stocking Amiga computers and associated hardware – far more than those stocking the ST.

This situation contrasts with that of March 1988, when Commodore had a mere 800 stores in the US, and a large number of disgruntled retailers threatening to stop selling the Amiga.

The reason was simple – discounting, which is now becoming a problem for Commodore in the UK, was prevalent in the US in 1987/88. Amiga buyers, often seen for a discount, were not able to handle for the discount merchants to buy their hardware. Unfortunately, when they did protest, those same users headed for the specialty stores that offered free advice.

The trouble was, the specialty store owners couldn't afford to offer free advice to customers who hadn't bought their hardware from their shop. The result was that discount merchants offered little or no support, and unhappy operators were besieged with hardware queries.

Commodore's US management undertook to resolve the problem by increasing the number of telephone outlets, and taking a closer look at the mail order outlets and their much sought after user letter, were not giving Amiga users.

ST Amiga Forum readers may note, when skimming through one of the two magazine's US editions, how few mail order tend to be discount sites there are compared to a year ago. When the end result has been slightly higher prices for the computers, the long term benefits to Amigans in the US are far greater.

The last year's growth in Amiga hardware has brought some positive benefits for Amiga users in the UK. Several new hardware operations have opened up for business in the US, most of which offering users pressure packages for a few dollars a day.

On the communications software front, an increasing number of online services and BBSs are now supporting the 2Mbit/s file transfer protocol. 2Mbit/s allows data to be transmitted as quickly as possible over a modem link and, if any errors are detected, the corrupted packets of data are sent separately, so as not to interrupt the data flow.

The result is that 2Mbit/s is



GOLD DUST

This month's letter from America from Format's own STEVE GOLD contains a bit more fuel for the raging 'My ST's better than your Amiga so there' debate. The letters editor is holding his breath...

the fastest and most efficient to transfer protocol around at the moment, and the system is supported in an increasing number of Amiga communications packages.

Anybody, the popular Amiga electronic communications newsletter, ran an interesting comparison between four major Amiga communications packages in its March issue. The packages were A2Comms, Amc, Atak file and Oriole.

The results that Amc today found were quite surprising, with A2Comms, the public domain communications package for the Amiga, outperforming the competition in 2Mbit/s tests.

The moral here – buying more for a package does not necessarily mean the software is better. It can mean quite the reverse, in fact.

In the ST camp this month, there are some unfounded rumors that Atari will phase out the 10400F after this year in favour of a new 386 Mega ST machine.

The reason for the change? From Atari's point of view, it will enable the price on the 5200F to be cut without damaging its 386 ST market share. From the user's point of view it will allow the Mega ST expansion bus system to be used.

The used is that Atari sees the Mega ST chassis as a way of beating Commodore with its 486C and – assuming it ever sees the light of day – an official 1MB

Amiga in the 486C's case.

For existing standard ST users (1020s and 1040s), that is, one of the major plus points of the Mega ST series is the 'one' feel of the Mega keyboard, Regent Systems, 0001 218429 (Mega) section it had the Atari with its Megatouch ST keyboard under the system.

The Megatouch retails for \$11.95 plus postage and first reports indicate it is going down a storm in the US, especially amongst those ST owners who can't afford an upgrade to the Mega ST or anxiety of the keyboard alone.

If your budget can stretch a little further, however, a new US company – Navarre Industries – has released a range of three hardware add-ons for the ST at really budget prices. All of the good plug into any Atari ST via the cartridge slot, and all at some of interesting times.

The three new products from Navarre are: Timekeeper, VideoDigitizer, and the Audio Digitizer.

The Timekeeper cartridge costs \$29.95 and is a battery-operated clock/calendar unit that keeps track of the time and date. Unlike other units of this type found in common with Navarre's cartridge add-on, the Timekeeper cartridge is a 'straightthrough' unit allowing further cartridge port add-ons to be plugged in.

The Video Digitizer, meanwhile, is a \$79.95 real-time digitizer

unit that allows almost any video source to be linked up to the ST and feed digitized images to disk and/or screen. Several grey scales are available as well as animation facilities.

The Sound Digitizer is similar in concept to the video unit and operates with sound samples entered. The sounds can be viewed through an oscilloscope screen on ST and/or played back through the cartridge outputs for an external speaker system.

Sounds played into the sound digitizer system can be manipulated at will, using commands, stretch, bend and repeat playback techniques. At \$99.95, this has to be an interesting innovation for music fans of the ST.

If these add-ons sound exciting, Navarre are planning a second wave of ST add-ons for release in the third quarter of this year. Navarre Industries, 404 Bennett Avenue, Campbell, CA 95008, tel: 001 408 878 6177.

Finally this month, just room to report that Atari has contracted with DIP in the UK for the production of at least one more version of its Pocket File cartridges, the 8008-based version of which was unveiled at the Atak Computer Show earlier this year.

First reports indicate that an 8008-based version of the Pocket File is planned, with an 8008-based version on the horizon. It's a pity they aren't working on a pocket ST...

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1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Software: Free Report & Packaging within the UK. Service £1.50. Overseas £2.50. Membership: Courier service £6.00.

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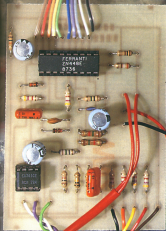
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DIY SOUND SAMPLER

It's all very well using the computer's sound chip for producing music, but, frankly, the results are flat. More and more games come with digitised, almost true-to-life, sound. PETER SPRAGG shows how you can build a sampler for under £25 and sound off on your ST or Amiga.





DON'T PANIC!

If you find your sampler is taking considerably longer to enter words it doesn't work...you'll be relieved to know that kit suppliers Magenta are offering a get-you-going service. Send your completed unit back to them with a little disappointment note. Magenta is happily obliged and will return it to Sound Sampler Repairs, Magenta Electronics, 135 Bunter Street, Bunter-on-Trent, Staffs, BS14 2PL. Where a couple of words for return.

A lot you can grab sounds and get your computer to play back the results. "Memorex", you might say, "you can already do that as there are countless sampling devices on the market. True, but you won't be able to capture sounds as clearly. And you'll have the restriction of having built the gadget yourself.

The added sound sampler for the ST or Amiga - or indeed almost any more that can use the printer port as a means of receiving data - will let you digitise everyday sounds and replay the results through the computer's monitor or television. The effects are spectacular. If you're only used to taped chirps, then you'll be in for a nice surprise. There's nothing to beat the thrill

of making sound sampling then.

The sample is a single channel type which mixes both the left and right channels of a stereo input into a mono signal before converting it to a digital signal for the computer to read.

The Format sound sampler is a box which plugs into the parallel (printer) port of the ST or Amiga. Software on the Atari copy of the disk will let you grab and replay samples while a disk supplied with the parts from Magenta will let Amiga enthusiasts do the same. Many of the software titles though.

Power is supplied to the sampler by a nine volt battery. As the ST doesn't

have a power line it was decided that a battery would be the best bet. An optional socket can be fitted to the board which allows the sampler to get power from a suitable mains transformer.

Details of the printed circuit board are shown in figure 2 - assuming you've bought the kit from Magenta Electronics (see the parts list elsewhere) all you have to do is identify the components, bend them leads to fit into the corresponding holes on the board and solder them into place. The circuit is made up of a high precision analogue to digital converter (ADC) and the minimum of components - this is to keep the costs as low as possible. The chip is connected to operate at 1MHz which is way above the maximum sampling rate of any available software. It is connected in 'bipolar' mode which simply allows it to sample all types of audio input.

A pre-amplifier has been built into the circuit to provide a high level input for the ADC. Effectively this means low level outputs like tape players and ampli-

GET KITTED OUT!

Ordering parts from a catalogue is a hassle, and if you're not done it before you'll rapidly get lost. But don't worry, Format in conjunction with Magenta Electronics is offering a complete kit of parts for sale.

There are several deals on offer so make sure you state clearly which kit you want and include the correct payment.

- Kit with elegant box as seen above (C2)
- Amiga disk with Format Sound V9.1 sampling software (C4)
- Built and tested sound sampler (C3)
- A full power supply suitable for use with sampler (C3.01)

If you hedge things up, Magenta are offering a repair service. Simply send back the complete kit and they will get it working. The price for this is £5.

Send your orders to Format Sound Design, Magenta Electronics, 135 Bunter Street, Bunter-on-Trent, Staffs, BS14 2PL or phone 0692 68443 with your credit card details. Please allow 10 days for delivery.

Figure 1

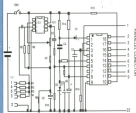


Figure 1, the circuit diagram. IC1 is the pre-amplifier for sampling of the incoming sound signal. IC2 is the parallel to serial converter to digital converter. The ADC takes incoming sound and converts it into the digital equivalent, numbers that the computer understands.

Figure 2

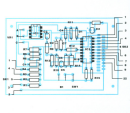


Figure 2, the component layout diagram. This shows how the components fit onto the printed circuit board. It also shows the component layout diagram. The layout is symmetrical and shows the routing of components across the board. The diagram includes a 25-pin D-sub connector on the right side, labeled 'PARALLEL CONNECTION'.



STEREO SAMPLING

Peter Springs has designed a stereo adapter for the DFF sampler. This will only work on an Amiga running the Protop Sound software. The module, which fits neatly into the Amiga, is available from Peter at 12 Somerset Rd, Bridgwater, Somerset, TA8 9PL. Cost is £10.

Res can be used to drive the sampler. You shouldn't connect the unit to the speaker outputs of an amplifier as this will blow your samples. The headphone socket could be used as a sound source, but the results aren't that impressive.

The circuit is connected to the panel (see fig 1) by a 25-way connector. A male connector is used on the A200, A2000 and 500, a female version is required for the A500.

Building the sampler is straight forward. The only tools you'll need are a soldering iron and small wire cutters. Don't forget the solder.

It is better to start soldering the smaller components into place first; it helps to keep the board flat. Take the resistors and identify them (their colours have been printed alongside the parts list) to help you identify them. Bend their legs by 90 degrees to their bodies; they should now slot into the correct places on the board. All components are placed into the board from the plain side and

soldered to the tracks on the other side. Solder the resistors into place, making sure you have them in the correct place, and only off any excess wire.

The two diodes have to be inserted the correct way round. There is usually a coloured band at one end which indicates the positive end. The diodes should be soldered onto the board with the band towards the plus sign on the board.

Next take the 0.01 uF electrolytic capacitors and solder them into three correct holes. These can go in any way round. Don't put the 47 uF at the first from the soldering iron may damage them.

The electrolytic capacitors also have to be inserted the correct way round. These are marked with a minus (-) sign on one side of their body. The other side is marked with a plus; this side should be soldered into place towards the plus side on the board. Solder the remaining capacitor's lead. These can be inserted any way round.

Wipe the connecting cable for inter-

facing to the computer next. This is made using a 100mm length of 10-way ribbon cable. Any length can be used, but the shorter the cable the less chance there is of picking up noise during sampling. Separate the strands at both ends by about 30mm. Strip each of the strands by roughly 5mm and gently bend each of them to prevent them from fraying. Heat a little solder onto each strand to make doubly sure that the cores don't come apart. Slop off any lumps of solder that collect at the ends of the strands. Carry out this procedure at both ends. Take the 25-way connector and apply a little solder to the 10 pins indicated in figure 3. Thread the ribbon cable through the grommet on the connector (if there is one) and then solder each of the cores to the fixed pins on the connector. Take the other end of the connector and thread it through the grommet in the case. Solder the cores into the board as shown in figure 2. Using a multi-coloured ribbon cable makes it easy to connect the correct core to the right holes of the board.

Five pieces of cable should be stripped back and soldered into the input holes at the bottom left hand side of the board. The wire should be about 100mm long and soldered to the back of the input socket as shown. The ground pin (25) should be connected to the case of the 47 uF electrolytic; it is being used. If a metal case is used to house the sampler then make sure it also has a ground cable attached.

Any type of reel socket can be used - see figure 4. And be careful to solder the ground wire to the ground pin.

A length of three core cable (approx 100mm long) is used to connect the volume control to the board. The wiring

SAMPLING SOFTWARE FOR THE AMIGA

If you're dying to use your sampler, then, you need software. The best value software is the public domain offering called *Panther Sound*. This program was given away on the Amiga six years ago. So if you've got it, dig it out and get some use. All instructions on using the program reside in the source file *sdspgms*.

If you don't have *Panther Sound* then you will be pleased to know that Magenta (0800 004040) can supply you with *Panther Sound* version 3.1 for the Amiga at £5. The price includes a disk and parking and postage.

You've got the software, what now? *Panther Sound* can be loaded either from the Workbench or from the CLI. The software is operated through the use of touch-sensitive pad buttons and various on-screen prompts. There are numerous graphical features available, such as the ability to combine two separate samples into one stereo sample. All the usual facilities such as cutting, copying and pasting chunks of sound samples are there. It's a very package to use - the best way to familiarise yourself with it is to get stuck in.

Figure 3

- 1 GND
- 2 DATA
- 3 DATA
- 4 DATA
- 5 DATA
- 6 DATA
- 7 DATA
- 8 DATA
- 9 DATA
- 10 DATA
- 21 GND



VIEW LOOKING AT CONNECTOR

Figure 3 provides pinout information when soldering the wires to the pins make sure you don't cross any. Also note that the diodes shown in the circuit are not shown looking at the connector.

Figure 4



Figure 4 shows the pinout information when soldering the wires to the pins make sure you don't cross any. Also note that the diodes shown in the circuit are not shown looking at the connector.

Figure 5



Figure 6

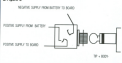


Figure 6 shows the pinout information when soldering the wires to the pins make sure you don't cross any. Also note that the diodes shown in the circuit are not shown looking at the connector.

Figure 7 shows the pinout information when soldering the wires to the pins make sure you don't cross any. Also note that the diodes shown in the circuit are not shown looking at the connector.



connections, are shown in figure 5. Connect the on/off switch with a length of two-core wire approximately 70mm long. Attach one core to the centre pin and the other to any of the outer pins.

The battery connector is soldered into place next. Make sure that the red insulated lead goes to the hole marked with a plus sign on the board. An external power supply can be used. The supply can be bought in any popular high street electrical store. Do make sure that the supply is nine volts DC. The wiring connections are shown in figure

6. This is an extra optional piece of kit and doesn't need to be included. The internal battery is disconnected automatically if an external power source is used.

With all the connections made, it's time to insert the two ICs into their appropriate sockets. A small indentation tells you which way round the chip should go.

Both should face the top of the board; IC1 on the left and IC2 on the right.

Mount the circuit board in the box

and ensure nothing shorts out the circuit tracks.

Switch off your computer and the sampler when everything is assembled. Plug the sampler into the parallel port. Switch everything on and check your levels. Load the sampling software and use it if it works.

If there are problems with the unit you'll have to open up the sampler and follow every connection and solder back to ensure that everything goes to the correct destination and there are no shorts.

DON'T FORGET

Magnetics Electronics are still selling the Sports Synthesizer kit (£29.95) mentioned in Issue 8 and the Analog MIDI interface (£29.95) from Issue 5. Magnetics are on 0800 654455. If you're interested, you can get the back issues which explain how to put the hardware gadgets together. Please use mail order offices in Somerset on 0438 74881 for details.

REPLAY 3 FOR THE ST

Now that you've built the sampler you'll need some software to grab sounds. On this month's cover disk you'll find a near-complete version of the Replay 3 sampling software from Microdeal. You can thank Tony Barker at Microdeal Systems for putting the software together. He's done a superb job as you'll find out when you start using it. Full instructions on using Replay 3 in the disk pages (page 16). Meanwhile, on PC's 68030, call Display 3 for the PC. We reviewed it last issue.

PARTS LIST

POTENTIOMETER	
VR1	10k linear carbon track
CAPACITORS	
C1, C4	0.1µF polyester
C2, C3, C5, C6	100µF 16V radial electrolytic
C7	220µF polyester
C8	0.001µF ceramic
SEMICONDUCTORS	
IC1	741 op-amp
IC2	2646AE 8-bit A/D converter

RESISTORS	
R1, R2, R3, R4, R11, R12	4.7k yellow, violet, red, gold
R5	200Ω brown, black, yellow, gold
R6, R8	22k brown, black, orange, gold
R7	1k brown, black, red, gold
R9	10k brown, green, black, gold
R10, R13	1.5k brown, green, red, gold
R14	300Ω orange, white, brown, gold
R15	200Ω brown, black, brown, gold
R16	10Ω brown, black, green, gold

MISC	
SW1	single pole double throw
SW2	5-pin DIN socket
SW3	25-way male D connector
PCB	printed circuit board
BOX	wood
IC1, IC2	holders
IC1, IC2	9-pin and 18-pin
IC1	9-pin, 18-pin and spacers for PCB
IC2	18-pin, 18-pin
IC1, IC2	shunt terminals of cable
IC1, IC2	optional 1.5kΩ power input
NOT PROVIDED	
Battery (9V PP3)	

the crowd
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old port
is your
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other
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FRIGHT NIGHT

THE ARCADE GAME

If you love being scared this'll be the game of your life! The explosive gameplay of Steve Bak coupled with the incredible graphics of Pete Lyon join together to make this arcade game adaptation of the hit RCA-COLUMBIA picture.

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SCREEN SHOT FROM
ARCADE GAME



FRIGHT NIGHT
SCREEN SHOT FROM
ARCADE GAME

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Summagraphics®



PUCK AND PEN

Before you write on the tablet you have to choose whether you want to use the stylus or cursor. The puck is a mouse-like object with four buttons and a cross hair to help line up your target. The puck's buttons replace the left and right mouse buttons. The stylus has one button on the side and another at the tip.

Does your mouse bore you? Do you find it's ball getting all clogged up? Is bank account in a healthy condition? If so, then perhaps you should consider a graphics tablet. GARY BARRETT takes a look at an Amiga tablet and finds out what Mores saw in them.

SUMMA SKETCH

£458.95 ■ All
Amigas ■ HB Marketing,
Brooklyn House, 22
The Green, West Drayton,
Middle, UB7 7PQ
(0895-444433)

Since the dawn of time man has written on slabs of stone, tablets they're called. Even God has been known to scratch a few words on such things. People eventually got sick of taking out a hammer and chisel every time they wanted to write a shopping list, thus paper was invented. Thousands of years later the tablet has returned, only now it's a piece of electronic gadgetry that plugs into your Amiga.

What do you get for your money you ask? What do you mean you DON'T ask? You're gonna be told anyway! You

get a square graphics tablet, a power supply, a cursor and a stylus, quill and pen if you like. You also get a disk for your dear faithful Amiga and an instruction manual.

My mouse for a stylus
Switching over to a stylus or cursor is a simple matter: double click on the *APRODraw* program on the disk and in matter of seconds you're switched to the tablet. The mouse no longer functions; instead the pointer is positioned according to where the stylus is with respect to the tablet. Reversing the process is as just as simple, only this time you double click on the file *APRODraw*.

But on the disk are two other programs: *WFO_Scale* and *WFO_Config*. *WFO_Scale* allows you to adjust the scaling of the tablet. It lets you increase or decrease the size of something on the tablet: convert a postcard to poster, a second sleeve to a beer mat or an Amiga to a Pocket PC. *WFO_Config* is used to set up *APRODraw* according to the hardware you own.

Any use?

Before you rush out to get SummaSketch package you should consider some uses for it. One obvious use is with art packages: it's so much easier to use a stylus for tracing a picture than it is to use a mouse. The cursor allows for even more accurate drawing.

Tablets can be used in computer aided design or CAD (see pages 52 to 56), transferring technical drawing, and the like to computer and then using the CAD software. Some games can even be controlled with the puck or pen that you'd be mad to buy the graphics tablet for that sort of use. You can of course use it instead of a mouse on the Macintosh.



Features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

supports

1 2 3 4 5

format

1 2 3 4 5

value

1 2 3 4 5

for

- Makes transferring line drawings to computer much easier
- Compatible with most applications programs
- Puck and stylus make mouse replacement perfect

against

- Expensive
- Best used in conjunction with a paint package



SPEAKING THE LANGUAGE

A music composition language offers you a convenient place of music by combining a series of special text commands and conventions, so you could write a program in another language such as BASIC or Fortran. Because programming languages work with strings, loops and subroutines, it's possible to write an MCL interpreter using complex phrases, without actually having to play a note on a keyboard. For games music, this is an easy way to create long, text random phrases.



SOUND ADVICE

Feel you're got a symphony inside you but can't play a note? A music composition language together with a MIDI synthesiser could be the answer, as CHRIS JENKINS finds out

also digital synthesiser hardware can be used with a sophisticated software package.

Opus-1 accepts musical notation in the form of text, and compiles it into standard Amiga format (IFF-AMIDI) files which can be read by other programs like Deluxe Music Construction Set or Amiga Studio. It supports Amiga IFF sound samples and external MIDI entry points, so it's suitable for all levels of hardware involvement.

The package comes with an unprotected language disk which can be read from the CLI or Workbench, an interactive disk, and a public domain movie demo. The 26-page manual is full of jokes about losing your footnotes, and Chopin's mathematics tutor, but honestly it's pretty straightforward in explaining the complexities of the language.

Opus-1 requires more than 512Kb to run, which is bad news for Amiga 500 owners; but there is a cutdown version, Opus 512, in the package. This is functionally identical, but uses fewer decorative displays, has no Play module (you use a separately SMOS Player program), has no Help functions, and doesn't allow you to compile as much data.

Power and Structure

Opus-1 compilers are written using a wordprocessor. It doesn't matter which wordprocessor — although fancy ones with alternative fonts and pretty colours will probably lead to confusion — and there are specific instructions for using Microsoft, Microsoft, and Ed included on the disk. Opus-1 then takes your text file, compiles it into machine code and plays your IFF samples or MIDI synths. The language uses reverse Polish notation, which is nothing to be frightened of — it just means that numerical amounts come before the function by which they refer, for instance to set the tempo to 100, enter

100 TEMPO

The main display consists of three bands: an information section showing most and output channels, memory space free and so on; a work area where your text is compiled; and a lower section of command boxes. These allow you, among other things, to select your text editor, name, save and play files; switch the text display on and off; switch the staff on and off; display of your compiled music in standard musical notation; bring up a help display; switch it off; and the high frequency filters on the sound output of Amiga 500s; and select the interactive mode, in which MIDI commands can be entered directly into the system.

Even itself is a structured language rather like Pascal; it doesn't use GOTOs or line numbers, but a dictionary of words which you can add to yourself, and a number of familiar commands like WHILE and REPEAT to control loops. Note names are represented by their normal musical letters, heights by numbers, and

Features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

commands

1 2 3 4 5

format

1 2 3 4 5

value

1 2 3 4 5

Opus-1 MCL

For

- Unique and challenging program
- Ideal for good programmers with no backward playing schemes

against

- Requires you to learn a complex language
- Keyboard is wordprocessor, and probably requires a more conventional music package

Opus-1 MCL

£39.95 ■ All Amigas (but see text) ■ Ariadne Software, 273 Kensal Road, London W10 5DB (01-960 0204)

Opus-1 MCL is the first music composition language for the Amiga. MCLs have a long and chequered history; in the early days of computer music synthesis, budding academics used them to generate semiautonomous buildings, which put many people off the idea of computer music for life. In more recent times, the best-known example has been the Fairlight MCL, and, on the domestic scene, the Hybrid Technology Music 5000 system for the BBC micro, which



and some software

that in the also start with the programs. The first of the MIDI instruments of

an important for institutions music is full of scale, and but for the sound in of the lan

the MIDI, to single MIDI on various, it is functional decisions (you use point), how allow you

ture in using a the which they create by colours - and for using of isolated of your text note and 3D synthesis, which meta-parameters of 16 amounts which they be tempo

of base showing memory work area and a lower area also added, your style then, off, patch of your meta-parameters in the and control MIDI carrying into the

language to GEOS, beauty of yourself, wants like says, like or normal ders, and

MAKING SENSE OF OPUS-1 MCL

To define a simple baseline in the Opus language you would type:
(Baseline) (B C C B B B B-
A A B B A A B B B B)

Having defined the string Baseline, you can use it as the basis for other definitions, using loops and manipulations for instance:

(Baseline 10 (baseline))
would create a track which plays the Baseline phrase sixteen times. Because the maximum number of notes is 10,000 and loops and section calls can be nested up to 34 deep, you can create compositions lasting long.

Events of up to 64 notes can be nested using square brackets, for instance: (C C C B B). Up to 64 simultaneous tracks can be created, but remember that it is your final composition to be played back using Opus or another dedicated music package, so you may well be limited by the number of simultaneous voices it can handle.

events by different punctuation marks.

Instruments are defined by Name in a MIDI channel, and you can define your own time signatures, test notes, volume changes, random elements and rhythms. You can also use MIDI commands to pitch bend, channel pressure and so on. There's a straightforward tape player routine on the disk, and a MIDI-to-Opus file conversion program included in the kit you can also import and edit notes created with other packages.

Opus1 MCL is a fascinating program, but, at a tag of crisp £100 (I, I can't imagine anyone other than being French academics actually wanting to use it to create music. Music is, after all, meant to be an art rather than a science - isn't it?

**Ladbroke
MIDIStudio
£99.00 ■ All 5th ■ Ladbroke
Computing, 33 Ormskirk
Road, Preston, Lancs, PR1
2QP (0772 503866)**

It's always fun to use a British company based on the Internet and German software houses at their own game, but usually the lack of R&D investment shows through in the final quality of the product. This certainly isn't the case with MIDIStudio, which is packed with good ideas and which is very polished and professional throughout.

You may have heard of Ladbroke Computing through their hardware products such as image scanners; this is their first venture into music software, and it's attempted to capture the high-end of the amateur market.

The first thing you'll notice about MIDIStudio, which operates in mono or stereo, is that it doesn't use GEM as such. The main screen display uses a

metallic 'keycap' style which wouldn't be out of place in a space shuttle cockpit. Still, it's not gimmicky and it manages to cram a huge amount of information onto the screen at once. There are several different screens for the various functions which are controlled by a menu bar at the top of the screen.

The program is a very powerful text-based sequencer which offers most of the facilities of packages costing up to four times the price.

MIDIStudio comes with a cartridge port dongle and a tagline-free, 30-page manual. The 20 separate tracks appear across the top of the screen, the main feature of which is a unique real-time mixing 'slider' display. By loading one of the demo tunes - for instance the impressive version of 'Julie Williams' Star Wars theme - and looking at the 57 to your MIDI synth, you can then change the volume of each separate track in real time, by pulling the sliders up and down with the mouse. Tracks can also be in Play, Record, Mute or Solo mode. This is an intuitive form of mixing which would be difficult to emulate in many other sequencer packages.

Each of the 20 tracks can hold up to 100 phrases, recorded in real time or step time, each of which can include a full range of control information such as velocity, pitchbend, and patch changes. If you want to filter out any of this information to save memory, you can call up a dialogue box in the middle of the screen by clicking on a command icon. In the same way you can set different note quantise levels from up to 24 notes, which isn't very exact in comparison to more professional packages. Track transpositions, MIDI data displays and so on. It's also possible to save pages of test notes with each song - reminding you, for instance, about effects settings or synth patching.

The most familiar part of the program is the tape-transport section at the bottom, where you'll find the usual Play, Record, Fastforward and Pause controls, as well as displays of the quantisation options, time signatures, tempo

MIDIStudio

for

- Expensive and powerful sequencer
- Good graphic display

against

- Not yet compatible with other sequencers
- Dangley - yuck!

Features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

markets

1 2 3 4 5

format

1 2 3 4 5

value

1 2 3 4 5

and so on. You can, of course, use MIDIStudio as your master clock for other machines, or have it drive from an external MIDI clock (including Song Position Pointer), tape-to-MIDI sync system or 24ppm pulse.

MIDIStudio certainly deserves consideration if you haven't yet chosen a MIDI sequencer package; it may well do everything you want without the cost or complexity of better-known packages.

A NEAT TURN OF PHRASE

MIDIStudio uses the increasing popular 'phaser-bank' arranging system, which operates much like older hardware sequencers than like newer software packages such as Steinberg's Pro-16. After defining a number of short phrases, you use the graphics arrange window to click-and-drag phrases, turning the tracks you want. You can even drag phrases from one track to another if you wish, then use transpose and edit functions to build up songs.

MIDIStudio can also function as a system realisation state file allowing you to record voice and sequencer data from other MIDI-compatible devices.



■ MIDIStudio's screen display looks complex but is surprisingly easy to get to grips with.

ON-LINE HELP

Registered MIDIStudio users have access to a telephone helpline, and can even have a customized version of the program created for a small fee.

Lipton in the pipeline include MIDI standard song files for transfer to other sequencers, a custom editor and a drum machine master rhythm creator, though it may then be while there is an opportunity.



ST Amiga Format's unique dual format disk gives you the best of both ST and Amiga worlds! Whether you're a joystick jockey or a machine code maniac, JASON HOLBORN takes you through the month's goodies.



DISK EXTRA

ST

New to the ST? See page 40 for full loading details.

ARCHIPELAGOS.....35

Experience the ultimate in three dimensional gameplay. One of the superior graphics and gals at the drawing, gameplay, 3Dh Archipelago, you've never had it so good!

REPLAY 3.....36

Do you really take the plunge and treated yourself to our 3D sound sampler kit? But what software are you going to use with it? Look no further, as we've got the fabulous Replay 3 for you to play with.

CHORDS.....38

Another musical treat this month comes in the form of Chords, a program that aims to teach you all you ever wanted to know about chords. Connect up a MIDI device and it'll even play them for you!

PICTURITEY 7.....34

We've already published Picturitey in a past cover disk (back in Format's youth, but this is a vastly improved version. It's fresher and comes packed with more features than I have time... er, time days like got on with it - Ed

FAST MOUSE.....39

Can your mouse pointer often lag left behind? Fast Mouse is a small but very useful desktop accessory that will have your mouse pointer dashing around the screen as if it were wearing roller skates!

AMIGA

New to the Amiga? See page 40 for full loading details.

BLOOD MONEY.....34

Experience "Propaganda's" latest and greatest release from ace programmer Dave Jones, author of the highly successful Menace. This one's us but that you'll have to wear an armband suit to play it!

FILE REQUESTER.....35

Do your Amiga programming misadventures lack that certain something? Could it be a decent file requester? If you program in a language such as C or Assembly, then you can easily add that professional touch in a matter of seconds.

DISK2.....38

The Amiga disk operating system is renowned for its talent for chewing up disks, but with this handy little program you can sleep easy in the knowledge that your data is safe from malicious disk drives.

SETKEY.....36

Setkey is a true example of the quality of ST and Amiga public domain software. This program once sold for over £15, now it's yours for next. Setkey lets you set up your keyboard exactly as you require it.

FOUR.....39

Two games in one disk? Yes, it's true. We are so good in good Four is an implementation of the classic board game, Connect 4 which is sure to keep the most serious gamers busy as you happy for hours.

ARCHIPELAGOS



Experience the ultimate in 3 dimensional games. Archipelagos will reward to gamers of all ages.

REPLAY 3



Who needs a Fastlight when you've got an ST or Amiga? Sample the exciting world of sampling with Replay.

BLOOD MONEY



Enjoy the hottest arcade action this side of the Atlantic with Propaganda's latest mega game.

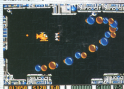
WIN WIN WIN...



Get a full idea for a program that it written and read it to us and you could win a share of the cash.



Yoga to Master Eagle was never like this!



You've got yourself the hardware, now it's time to get down to some serious adult learning.



AMIGA

BLOOD MONEY

PROGRAM: By Paycomet
MACHINE: All Amigas
FILES: BLOOMONEY

What would be your idea of the ultimate holiday?

Spending two weeks with the cast of *Neighbours* perhaps? How about a most exciting weekend in the Swiss Alps? Be assured, whatever you choose, it's going to be tame compared to what the people of the planet Yarnat get up to in their spare time.

The name of the game is alien safari. For just a few credits, you get the chance to fly into any one of four alien infested planets and destroy as many of the monsters as your joystick finger will allow. Whenever you destroy an alien, you will be rewarded with a bounty, the more plants you kill, the more credits you earn. Once you've earned enough credits, you can quickly pay into any of the numerous plants scattered on the planet and supply yourself with some groovy alien-watching hardware.

However, there's only one snag. These aliens are not going to sit back and let you waste time. Why? They object to having their bot plasma energy from a laser cannon melting their brains, is hard to understand. The fact remains, you'd better be careful or you'll end up more scarred and fried than a steak tartar.

Getting going
You can book your trip on an alien safari by either double clicking on Blood Money's icon on the Workbench, or alternatively, by inserting our cover disk at the front. *Neighbours* prompts when you first turn on your Amiga. You'll need to take along some about walking boots, a packed lunch and some waterproofs... oh yes, you'll also need a joystick plugged into joystick port two.



Blood money waits nowhere! You'll need the cash first.

ST

CHORDEX

PROGRAM: By G.Franklin
MACHINE: All Colour STs
FILES: CHORDEX.PRG,
CHORDEX.DOC

Anyone who has tried to learn to play either a keyboard or a guitar will tell you that it most certainly isn't an easy task. With all those chords, your fingers can often end up tied in a knot! What about all the strange names that musicians give chords? Could you play 'A Sharp diminished'? If you're a suffering musician, then Chordex is for you.

Chordex is a very simple, but very useful, program that aims to teach you all the different chords on both a music keyboard and a guitar fretboard. All you have to do is point at the particular note in question - select whether it is major, minor or diminished - and the chord will be displayed on screen on both a keyboard and guitar fret board. If you have a MIDI keyboard or sound module plugged into your ST, Chordex plays the chord through MIDI.

Getting going

You can load the program by double clicking on the appropriately named icon from Desktop. If you

wish to hear the chord, you must plug a MIDI device into the MIDI Out port of the ST. Full instructions are available within the Chordex folder.

ST

PICSWITCH 7

PROGRAM: Public domain
MACHINE: All STs
FILES: PICSW7.PRG,
PICSW7.DOC

One very convenient feature of the Amiga is its standard file format, IFI. When you produce a picture on the Amiga, chances are you'll be able to load it into any other paint package without any modification whatsoever. Unfortunately, the ST is not blessed with such a standardised file format, the machine has over 10 different types of the last count that do you do therefore if you want to convert a Tivvy picture into Egos file format or a Segas free picture into low-res Headroom? Use Pictswitch 7 of course!

Pictswitch 7 is the latest release of the popular screen conversion program that we first published on issue one's cover disk. This latest release has several very powerful features that merit its re-appearance.

The original Pictswitch only handled two file formats,



Chordex in action. Learning chords has never been so easy!



Pictswitch's impressive resolution switching capabilities in action.

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PeSatch
concepts,



It does: you've loaded your picture, just press B to save it in any resolution and any file format that you desire.

logos and bioscreens. This loaded release bundles the compressed file for the format. Another very handy feature of PeSatch 2 is its ability to match the resolution of any picture. If you have a high resolution picture you can have it converted to low resolution in a jiffy. Also, if the resolution of the picture you are trying to load is different from the resolution your ST is in, PeSatch will automatically convert it to your current resolution. Very handy indeed!

Getting going

You can load PeSatch 2 by double clicking on the PE2SATCH.ICO icon on the Desktop. Full instructions, including details of all the different files needed to configure the program, are included within the PeSatch folder.

AMIGA

FILE REQUESTER

PROGRAM: Public domain
MACHINE: All Amigas
FILES: REQUESTO, OFREQ-
REQ.C, GETFILE.D

Calling it C and Assembly programmer! As you already know, the Amiga has no standard file requester built into ROM (but look out for Kickstart 1.4). This means that unless you're an application programmer, your programs will end up having to use the old and ugly "Please type in filename"

prompt. This is fine for simple CLI-based programs, but for more complicated programs it can cause any number of weird problems.

Take a look around at any programs available within either the public domain libraries or even commercial products and you'll notice that although the Amiga doesn't have a standard file requester, most programs seem to use the same file requester. This file requester is actually a public domain add-on module written by those rather clever chaps at Macintosh in the States. The Macintosh file requester provides a very easy way of incorporating a requester into your own programs with a minimal amount of fuss.

Getting going

Incorporating the Macintosh file requester into your own programs is simplicity itself. All you have to do while writing your source code is to call a function called `openFile()` and pass it the appropriate parameters. Once you've written your program, compiled it as usual and then passed it through the Amiga linker, you'll have to create a linker 'make' file and include the file `openFile.o` as one of the modules to be linked in. Once everything has compiled/ assembled and linked successfully, your program is now ready to use. Full instructions on using the file requester, including demo source, are included within the file `getfile.c`.



It's like you could have this lovely file requester within your program using macroprogramming.



ST

ARCHIPELAGOS

PROGRAM: By Legation
MACHINE: All colour STs
FILES: ARCHIPELAGO.PRG,
TITLE: .PII, ARCHI.SAT

Along time ago the universe was ruled by the powers of the mind. The centre of this energy radiated from the Ancients, a race of immortal humans who controlled and regulated the universe. Together, the power of their minds created a thousand worlds, each an island in space where the ancients met, talked and drank tea.

Then, one day, the Ancients turned their minds to one planet in particular and they imagined scenarios, continents and finally life. From these early beginnings, civilisations grew.

The night that met their eyes was of a thousand parallel planets, each an island in space. The Nations lived the Archipelagos so much that they claimed claim to them by placing an obelisk of power on



At least look at those greenmen. Each planet, each being a continent of your power.

The Ancients used to 'de-imagined' the Nations, but a war too late, the obelisks taught the powerful minds of the ancients and won. The thought of being 'de-imagined' made the Nations mad and so,

one morning while birds sang Arcadian harmonies, the Nations slew the Ancients and banished their sides to eternal suffering.

The death of the Ancients had a catastrophic effect on the many worlds that made up the Archipelagos. Where flowers once bloomed, eggs filled with poison lie waiting for a spark of elemental energy to free their deadly contents. Where birds once sang, evil marmosettes hiss and make the very fabric of the Archipelagos. The Nations have long gone, but result of their work still remains.

You must rid all the Archipelagos of the evil power that destroyed the Nations. Each Archipelago has several stones scattered around it, and somewhere there is the special obelisk. To remove the power, you must destroy the obelisk. To destroy the obelisk, you must first destroy all the stones that supply it with its energy. To do this you must join each stone to the obelisk. Once all are destroyed, you have 90 seconds to finish off the obelisk. Simple! Easy! Don't let us fool you!

The game is played using both the keyboard and the mouse. F1 builds up the square of land currently under the cursor. F2 displays the game map and F3 rotates you by 180 degrees. Pressing the left mouse button on a green square will move you about. How fast you can only move on the green squares.

Getting going

You can load Archipelagos by double clicking on the ARCHIPELAGO.PRG icon.



It's the view the main (document) Archipelagos created by the minds of the Ancients.



AMIGA

SETKEY

**PROGRAM: Public domain
MACHINE: All Amigas
FILES: SETKEY.
SETKEY.DOC**

One of the most confusing aspects of AmigaDOS is that of key maps. How many times have you pressed a key on the keyboard only to see the Amiga print something entirely different? The reason for this is that the Amiga keyboard is configurable to suit the needs of the particular country it is used in. For example, if you tried getting a pound sign on a US keyboard, you'd probably end up with a dollar symbol being printed.

The Amiga reads these keyboard definitions from what are known as 'keymap files'. A keymap file contains information on what the Amiga has to print whenever you press a key. By using Setkey, it is possible to completely customise your Amiga

keyboard: just think, you can have the Amiga print an A for every key pressed. Now that would be useful!

Setkey, as you've probably already guessed, is a program that allows you to create your own keymaps or modify existing ones. The program was originally written for the 81000, but it works without problems on 81000s and 82000s. The only difference between the 81000 keyboard and the 8000/8080 keyboard is the extra keys on the numeric keypad.

To create a keymap from scratch, click on the key you wish to redefine. A window will pop up containing the current values assigned to that key. Edit the current definition to your requirements and then select 'modify keymap'.

Once you've successfully finished redefining the keyboard, save it off to disk and exit the program. To use your new keymap, enter the CLI and enter `system>loadmap` *File Name*

Setkey will display a screen like this:



Just select the key you want and then type in the definition. Customised keymaps have now come.

where Name is the name of the file holding your new definition.

Getting going

You can test the ability to enable clicking on the Setkey icon from

Wunderbar. If you have expanded memory (1 Mbyte or more), you may have to switch it off to use the program correctly. Full instructions are available within the Setkey drawer.

**SET
REPLAY 3
PROGRAM: By Microvare
MACHINE: All STs
FILES: REPLAY.PRG,
REPLAY.DOC, SAMPLES
FOLDER**



your local dealer or the nearest Amiga store. You can also contact us via our hotline, where we're offering a free trial. On some sample cards, we'll show you how to enter the code. Replay 3 hardware is only half the story; without the appropriate software your digital won't go anywhere. A great deal of work has gone into the software to ensure that it's easy to use and to bring you the excellent Replay 3 software from Microvare.

Replay 3 is a complete sound sampling system, and is one of the most powerful tools available for the Amiga.



Sampling 3 - Replay 3 can take the sampling rate from 8000 Hz up to 15000 Hz. The higher the sample rate, the higher the sound quality. Higher quality also means memory is consumed faster.

Variable sample rates - you can sample sounds from 8000 Hz up to 15000 Hz. The higher the sample rate, the higher the sound quality. Higher quality also means memory is consumed faster.

Removal Sample - just press the R key and the sample will be removed. Set to zero level.

Remove Sample - just press the R key and the sample will be removed. Set to zero level.

Full edit and paste facilities - a whole host of facilities for editing your samples is provided.

Getting going

You can load Replay 3 by double-clicking on the REPLAY3.PRG icon from the Desktop. Complete instructions on using the software are included within the Replay 3 folder. G'd luck to you.

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AMIGA

FOUR

PROGRAM: Public domain
MACHINE: All Amigas
FILES: FOUR, FOUR.DOC

All this ain't winding round to good for the soul. What is needed is some really positive, thought-provoking games to keep the old brain in shape. With this in mind, the, no -- Gb, Format presents Four.

Four is a very nicely presented computer version of the classic Connect 4 board game. The object of the game is very simple, but the strategy needed to conquer it can be very complex indeed.

Four aims to get four of your counters in a row -- either horizontally, vertically or diagonally. Your opponent, the computer, also tries to do the same. You must defeat the computer's efforts if you are to be successful.

One of the nicest things about Four is that it is small enough to have running while you have other programs multitasking. Just think, if you're waiting for your spreadsheet to perform a complex operation like calculating just how overdrawn you are, you could bring the Four screen to the front and you have a quick game while the machine continues working with the spreadsheet. What said multitasking hasn't got a win?

Getting going

You can load the game by double clicking on the Four icon from Workbench. After a few seconds of disk access, the game should load.

All the game control functions are accessed from pull-down menus. These can be accessed by holding the right mouse button down. Full instructions are also available within the Four screen.



■ When you're multi-tasking, sometimes whenever when you're just a game on a desktop on PowerT.

ST

Is your mouse pointer starting to feel the pangs of hours of Desktop tracking? While you may be loitering around the desktop at break-neck speeds, the poor old mouse pointer still seems to trundle slowly across the screen. However, with Fast Mouse your mouse pointer need never feel left behind again.

Fast Mouse, as the name suggests, is a very handy little program that aims to make your desktop sessions more productive by speeding up the on-screen mouse pointer.

Getting going

Fast Mouse is a desktop accessory and consequently cannot be loaded with the normal pop/double click procedure. To use Fast Mouse, you will have to first install it on your hard disk. Do this by copying the file FMOUSE.AOC to the top directory of your boot disk. Once the file has successfully copied, reset your ST with your boot disk in the internal drive. After a few seconds the Desktop screen should appear. Now just move the mouse pointer up to the Desk item and a menu will drop down containing Fast Mouse. Select it, and you're away.



FAST MOUSE

PROGRAM: By S. Higgins
MACHINE: All STs

FILES: FMOUSE.AOC, FMOUSE.DOC

AMIGA

DISKX

PROGRAM: Public domain
MACHINE: All Amigas
FILES: DISKX, DISKX.DOC

The Amiga disk operating system is not exactly renowned for its kindness to floppy disks. In fact, if you've got a disk full of valuable data that mustn't be erased at any cost, fate dictates that sooner or later AmigaDOS will corrupt it. When the unfortunate does happen, what do you do? You could start by running the disk through Defragment, but if that fails you've



■ DiskX in action. Now, DiskX is proving the very depths of our nerve disk. DiskX is a very handy tool to be very careful when using it as you could do irreparable damage to your precious disks.

got problems. That was until DiskX arrived.

DiskX is a powerful multi-purpose disk editor/analyzer that provides you with all the tools you could possibly need to make you to rescue files from corrupt disks.

Getting going

Double click on the DiskX icon from the Workbench to load the disk editor. The version on our cover disk needs access to a blank file within the DiskX driver and so, during loading, several assignments have to be made which may require you to swap disks. Follow the onscreen

instructions and everything should load fine. Full instructions on getting the most from this powerful program are available within the tutor.

Format warning

DiskX is most definitely a technical program and should only be used if you really know what you're doing. Do not casually play around with it on your lower disk or any disks containing valuable data; one changed byte on a disk could have a disastrous effect on the rest of the disk. Don't say we didn't warn you!

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Figure 1

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Figure 1 consists of two bar charts. The left chart is titled 'All respondents' and the right chart is titled 'Respondents who have been personally affected by the economic crisis'. Both charts show the percentage of respondents for two levels of agreement: 'Strongly agree' and 'Disagree'.

Category	Strongly agree (%)	Disagree (%)
All respondents	65	35
Respondents who have been personally affected by the economic crisis	75	25

Table 1

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TABLE 1

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HOW TO USE THIS DISK

The ST Amiga Format cover disk is a special format disk which both the ST and the Amiga can read. Even if you are a seasoned computer user, please read these instructions carefully or you could permanently damage your copy of it.

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal disk-to-disk copying method, as recommended in the Amiga and ST manuals, won't work. Instead you will need to format a blank disk and copy the files individually. Don't panic, this isn't at all difficult.

ON THE ST (assuming a single drive machine)

1. Take a blank disk and format it in the usual way.
2. With the blank disk still in the drive, double-click on the A: drive icon to open up the (blank) contents window.
3. Now drag the icon for drive B into the open window of disk A. This will copy all the files, one by one, off the master disk to your new disk. Make sure that the master ST Amiga Format disk is write-protected (the sliding tab should be back so the hole is open) and put it in the disk drive when asked for disk B.
4. You will now be prompted at various times to insert disk B and disk B while copying takes place. There

will be a lot of swapping to do on a single drive ST. Disk B should be the master disk, disk A your newly formatted copy.

If you want to cut down on disk swaps, you can use the External RAM disk program provided on cover 5B disk as an intermediate disk.

Note that our special cover disk contains about 300 more files than will fit on a standard single-sided ST disk. If you own an old 500, you'll have to be selective and copy only the files you want.

ON THE AMIGA (assuming a single drive AG08)

1. Start your Amiga up with your normal Workbench boot disk.
2. Take a blank disk and initialize it in the usual way.
3. Make sure that the master ST Amiga Format disk is write-protected and put it in the drive drive. Double-click on the disk icon that appears. Drag any icons you see in the contents window onto the RAM disk icon.
4. When the disk activity light has gone out, put your newly formatted copy disk in the drive instead. Double-click on the RAM drive icon to open its window, and drag program icons from that onto the new disk icon. This copies the files one by one.

The programs may not all fit in the RAM drive at once on an AG08 - do whatever will fit, then after

step 3 delete them from the RAM disk by clicking once on each and, holding the right mouse button down, selecting discard from the Workbench menu. Repeat steps 2 and 3 for the rest of the icons.

USING THE PROGRAMS ON THE ST

When you turn the ST on and put your disk in the drive, you will see a window opened with the contents of the disk displayed.

Each program will have a number of files on the disk. A program called DOUGAL, for instance, will either have an icon named DOUGAL.PRG or there will be a folder called DOUGAL. If there is a folder, double-click the left mouse button on it to open it up, and you should see DOUGAL.PRG inside it. Just double-click on a program's PRG file to run it.

Each program should have a corresponding .DOC file - double-click on this and then choose Show from the box that appears to read the detailed info from the author. Always read the documentation before running the program.

Programs described as 'disk accessed' don't have PRG icons to be clicked on - in this case special running instructions are given with the program descriptions.

ON THE AMIGA

The main program will automatically run when you turn on your Amiga.

and insert the cover disk. To get the rest of the items, you will need to run up Workbench first of all from your normal startup disk. Once at the Workbench, put the ST Amiga Format disk in the drive and double-click on its icon to open it.

Most programs on this disk have icons assigned to them. To run any of the programs, just double-click on the program icon and after a few seconds the screen, the program should load up. In the case of DMRK, when you try to load the program the Amiga will prompt you to insert your Workbench disk a couple of times, follow the on-screen responses and DMRK should load fine. For better instructions on using the Workbench, refer to the introduction to the Amiga manual that came with your machine.

When you click on a documentation file, a new window is opened and the text is displayed a screenful at a time. Press any key to move from one screenful to the next, or click on the close gadget in the top left-hand corner of the window to cancel the display.

Jason Wilson

WE WANT TO GIVE YOU MONEY!

Name _____

Address _____

Phone: _____
(Daytime) _____
(Evening) _____

My program name is _____

For ☐ ST ☐ Amiga

Approximate total size of files in kilobytes: _____ K
(We cannot use programs longer than 100K; shorter submissions, under 100K, stand the best chance of publication)

It is a ☐ Game ☐ Technical tool
☐ Business utility ☐ Art program
☐ Educational ☐ Music program
☐ Novelty ☐ Other _____

BRIEF DESCRIPTION

Checklist (please tick)

- ☐ Stamped addressed envelope for return
- ☐ README.DOC explanation file on disk
- ☐ Printout of README.DOC file (if possible)
- ☐ Name, address, machine type written on label
- ☐ Disk certified virus free

IMPORTANT - Please sign this declaration:

This program is submitted for publication by ST Amiga Format magazine. It is my own work and has not been submitted for publication elsewhere. I claim my national title and glory.

Signed _____
Date _____

If you're an experienced programmer for either ST or Amiga which you think other readers would find useful, interesting or amusing, we'd like to hear from you.

1. Make sure your program is bug-free.
2. Create a file called README.DOC on the disk which contains exactly how to use your program.
3. Put a label form, name, address, machine type, and send it to the address below.

Cover Disk Submissions
ST Amiga Format
c/o Jason Wilson
100th and 1st

Photos copies are fine if you don't want to damage this mag. You could win a share of \$4000 prize money for the best programs each month.

part of the action
at the
ATARI
COMPUTER SHOW

All related hardware and software in the rapidly expanding world of micro music will be on display, including keyboards, samplers, sequencers, and instructional studio software.

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and will also be able to get support advice from

*Talent of combining text and pictures is key; business terminology becomes, with a low-cost HTML program, you can create anything from a cloth newsletter to a mouth-watering magazine or book.

As the show goes, you'll be able to try out the latest cameras, digitizers and report-card programs, and get a first-hand glimpse of the way DTP is set to develop in the future.

Feb. & Sept. 10 days - 4000.
March 10 days - 4000.

The Atari Computer Show is back - with many new products and developments. Atari has grown to be one of the major players in the computer world, supported by an incredible wealth of top-quality applications, games and utilities - all on view at this show.



Many computers are concerned for their ability to run Windows smoothly and securely.

The range of new software on show will demonstrate how the power of these machines is continually being stretched, producing faster and even more sophisticated means with which machines

The winning entry in the SPOB Gamecarder of the Year Award will be awarded, and several new exciting SPOB accessories will be shown for the first time.

If you're a home game player, you'll find there's no room for an office at the home -- you're guaranteed a small town!

So for a great day out - whether you want to see what the future holds for Intel computer users, take advantage of the bargains on offer or get advice on specific applications - the Intel Convention shows is the place to go.

And if you read in the company store, you'll never
 sit with the others in a circle to eat!

For the first time we are now offering a family ticket for just £11, allowing entry for two adults and two children. So you can save up to 50 off the usual entry price!

Alexandra Palace is so easy to get to by car, rail, underground or bus. It has its own British Rail station, just nine minutes away from King's Cross, and there's a free bus service shuttling between station and show every 10 minutes.

If you're travelling by road, the show is only 11 miles away from Junction 11 on the M24. Can you find it in time?

PAGE 10: After Computer Shows Results
Reveals Contradiction, 98 (Nov. 2,
November 2nd) News edition 1986-1987

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Subscriptions: 12 issues
\$5 (individual)
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Name _____

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[illegible]

Nothing can beat a high resolution monitor when it comes to detailed graphic work, DTP or serious games playing. While the official Atari and Commodore offerings are good, there are better alternatives as SIMON WILLIAMS discovers.



SCREEN DUMP



If you use your ST or Amiga regularly, or want the added convenience of being able to use all ST models on the same display, there are various options open to you. They all cost money, but then you expected that, didn't you?

For ST owners, who are blessed with decent colour and mono monitors, the spend can be quite high before any significant improvement is noted. If you're buying for the first time, though, your best bet is to buy a machine with out a monitor and consider the extra facilities of a multiplex. You can then add the monitor of your choice for a comparatively small extra outlay.

On the Amiga the need is a rather more pressing as the supplied monitor is not as sharp, or of similar resolution, to the ST's. The advantages of a better monitor are less eye fatigue, a brighter and better looking display and confidence that there's little Amiga or Commodore can throw at you that you won't be able to display — except internal mode. This won't be fixed by a multiplex, unless you also buy the Superfast board, for a further £350. This is probably only worth it if your main interest is in video applications.

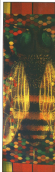
Alongside normal monitors, there's a breed called multiplex. The principle of multiplex monitors is that they can sense the vertical and horizontal scan rates of the incoming signal and adjust themselves accordingly. This feature was originally developed to cope with the multiplicity of different graphics standards on the IBM PC. It has spin-off benefits for both ST and Amiga users, though.

An ST running into a multiplex monitor can display all three display modes, including the monochrome hires output. Once again, though, you'll need a special lead with a switch mounted in it to flick from colour to mono mode. Likewise, too, that your ST will insist when you flick the switch, so you can't maintain programs or data.

Current Amiga users get no special benefit, though, of course the screen resolution and clarity is of a very high order. When the new Amiga enhanced chip set comes out of Commodore, though, it will support extra hires modes which will only run adequately on a multiplex monitor. If you're looking for a good investment in the future, a multiplex monitor will keep your ST or Amiga happy for years.

If you like the idea of a multiplex monitor, but can't run in the 640x of the Quadbus, you could consider the more MC Multiplex (2 board £150). All ST and Amiga display modes supported (except internal).

There are a lot of monitors available for ST and Amiga, here is a selection we feel are appropriate. Note that the prices quoted are manufacturer's suggested retail prices. You can undercut them considerably by shopping around. Check that your supplier can provide the right leads for your machine, though.



Is the Superfast a de-multiplexing display board for the Amiga 500. The board accommodates the data and video data from the computer display. The board plugs into the video slot of the Amiga and has a control for turning off a multiplex or RGB-compatibility monitor. Inquiries at I.T. Group, 1000, Wokingham, RG40 3BQ. Superfast £170 (inc. VAT) £4000 can display and with one for £200.

SUPERSCREENS

You may have seen some of the large A4 and A3 paper-wide monitors on the PC or Which Computer shows, normally attached to Mac or PCs. Most of the 10-12 inch (10-12) are in the process of putting together an A3

Magnum for the ST or the Amiga. If you're looking at this kind of monitor could make life a lot easier for you — at a price!

If you can't wait for the official UK release of DMC's monster DTP package, here's what the American grey import version offers. You might not get the user support you're after, but at barely half the official price can you complain? ST DTP will never be the same again as MARK HIGHAM discovers.

£259.95 ■ Mono: 576 with 1Mb, 4Mb and hard drive recommended ■ Gaimster, Unit 1, Row of 7 Wallington Road, Sandhurst, Surrey GU17 8AW. Tel: 0252 877431.

After discovering that the UK version of Calamus wouldn't be due for months, and noting that the American release had been out for some time, Gaimster decided enough was enough and imported the American version. Allen are in the process of ironing out localized bugs in the original Calamus and making it suitable for the UK market. This review is based solely on the US release – however it is expected that the UK version will be very similar (albeit nearly twice the price).

Calamus has been touted as the most versatile and professional DTP package yet produced for the ST. As such, it comes in at a comparatively high price and makes heavy demands on the hardware. At the very least you

will need 1Mb of memory, a double-sided drive and a decent printer. If you intend using the package seriously, a hard disk, the Atari laser printer, a giant A3 monitor and a massive 4Mb of memory are recommended. If you go for a setup that's this comprehensive, then you'll have a system which compares favourably with anything PC or Mac based. And it will cost you half the price.

The basic Calamus arena is made up of drop-down menus which call up additional menus, in turn these sub-menus call up further menus. As a result of these extensive menu features, Calamus can prove overly complex – particularly for the novice user. This is compensated somewhat by a very handy help facility. A help message appears at the top right of the menu bar which corresponds to the mouse point on its position. This feature means that you know exactly what the icon or menu selection will do before you click on it.

Unfortunately Calamus provides only a very limited number of keyboard shortcuts (for instance, **MSA** to select the entire contents of a window which saves time and mouse movements when you have found them). This means you

▲ File App Text View Extras



■ Calamus in action. The front screen is filled with menus and with very few simple shortcuts implemented you'll need access to all the icons most of the time. This complexity can make it difficult to use but with all sorts of graphics options and text on offer it can become a powerful package when you learn what you're doing. There's even an option to take direct input from a scanner and import it into a picture box, although grey-scale isn't supported.

VERSUS EXPRESS

Here, at Future Publishing, we've got Express working on set pages. It features all the Calamus extras plus one very major feature that is unfortunately not the Future pages. By drawing a picture in a point package and importing it into Express, text can be made to run around the image. In Calamus, you will only see ground/force and not video pictures.



■ The fonts are mathematically created from within Calamus so that on the larger sizes they are still perfectly shaped.

most users will be restricted to the main size of the menu system. Along with the help manuals, a special area of the disk display is not aside for displaying keyboard shortcuts, ensuring they work.

Getting it down

Laying out a page with all the various text sizes and page links is what makes DTP such fun. Calamus' treatment of this is therefore very important. The normal page size must be picked first - 10 or 12.5 inches, for instance. The others from the likes of Fleet Direct Editor which allows you to create a new page and then enter all pertinent information regarding number of columns and grids. Calamus continues in a totally different. The create-page feature lets you set page size, orientation and number of pages. Column grids must then be selected from another menu. This sort of operation reinforces the argument that Calamus is overcomplex just for the sake of it.

Sometimes may be added as a specific number of columns and rows; simply grids can be laid down on top of it. Other options let you snap the text to the various guides, allowing precise layout.

The next step is to position picture boxes, or individual text boxes. Seven different types of box exist - far more than is really necessary. The box types are: ordinary text frames, rotated text, text with leaders and leaders, plus a selection of graphics boxes. Mouse clicking from the frame mode alternates between the move and size box options, and the view new box features. Text can be made to run around these boxes using another menu option. Sadly text doesn't automatically flow around boxes. A number range of features allow you to decide whether to run text around the right or left side of your box, run it over the top or employ a host of paging features to run the text out of one box and into another. By selecting where the text should not around in the way, you can easily decide the basic structure of your layout before importing text.

Where's the text?

As with the majority of DTP systems, the intention is to write your text in a word processing package and then import it later. First Word protocols are supported here as well as standard ASCII. However, the real bonus is a special text editor which can be used to examine all text and perform a small selection of editing features. It's not really intended to be used as a primary method of data entry, but simple find and replace options as well as style changes are possible from here. The text appears in one standard font with the control codes - such as style and text size - enclosed in square brackets. It is an extremely fast way of making corrections to data without waiting for the screen to be redrawn with each character - a particularly painful problem associated with both Fleet Street and Timeswarp DTP.

A range of font styles are included on the Calamus disk and these may be loaded separately as and when you need them. Style and size are adjusted by selecting the correct frame and then highlighting the text using either the mouse or block start and end markers. The new type is selected and the changes implemented. This method can be used to set up your text as justified, centered, ragged right or ragged left. Additionally, you can add a ruler to individual boxes so that lines can be adjusted in these boxes without affecting the rest of the text. Letter and line spacing can be adjusted in steps of 1/1000th of a millimeter.

Text may be imported into five separate clipboards where it can be altered, copied elsewhere or printed altogether. Unfortunately, without any undo option, it's important that you make no mistakes.

Although text is set to run around boxes, the slightest change in the size of a box necessitates reselecting the surrounded option. This is a serious problem because it means that the text will appear as if the box were of its original shape. When dealing with important layouts where pictures or text boxes are regularly inserted to adjust

module changes in the layout, this can be a terrible waste of time.

Aside from all the standard DTP features, Calamus incorporates several extras. Boxes can be set to a specific size and then labelled as proportionally accurate; further alterations will make only proportional changes to the frame size. Text can be adjusted so that it sits at absolutely any angle - this has to occur within a separate box though. Picture boxes too can be set to function at a size proportional to the actual picture being imported. Pictures may be imported in a multitude of formats including the Degas and EPS standards.

Once you've purchased your page into a printable form, it may be sent to the printer by first selecting a driver. Timeswarp DTP is phenomenally slow in this area but there are no such problems within Calamus - it prints away without making any major demands on the disk drive.

On to paper

No matter what the DTP package, ultimately it's the output which matters. Calamus is not really aimed at the flyer sized output market even though it is possible to use these printers. Calamus is really in a league of its own when used with a 24-pin printer or the Atari laser printer. With 24-pin models, three passes for each line of 24 points are made. This is the same as that method as that employed by Timeswarp DTP; it has proved to give the best quality output for dot-matrix printers. Unfortunately it's extremely slow, often taking in the region of 10 minutes to produce a complex page. The Atari laser printer is supported, as is the industry standard Hewlett Packard LaserJet, but the lack of the much more flexible Postscript language needed to use an Apple LaserWriter. PostScript is a real omission as it provides the use of professional typesetting bureaux and laser printing agencies which are a boon to non-laser printer owners.

UK AND THEM

The original version of Calamus was designed for use in the US, but programmers (IBM) are working on a special UK version. To top the UK version has taken six months. Because of this wait Calamus has imported the American version for distribution in this country. The imported version doesn't benefit from the new changes implemented by IBM and there is a question mark over the extent of software support on offer. Calamus claim they will answer any queries that they can and will standard American should exist on problems arise. This is hardly the ideal environment for software support, but it may well be outweighed by the large difference in prices - the UK version of Calamus weighs in at a massive £1000.

The bugs known to exist in the UK version are fairly extensive when it sets a new UK version is being worked on. Atari claim that they include problems with importing IBM files and GFA Basic data (but during continuous use the only serious problem was encountered was a temporary crash when dealing with the clipboard. The differences associated with running text around boxes should also be solved in the new UK version as well as extra assistance on the manual which is currently complex and especially difficult for the DTP novice. It should be well by now know when Calamus is about to crash on you - that's got to be said.



VORSPRUNG DURCH TECHNIK

This version could be the first UK one currently under development. A version was originally written by GEM for sale in Germany and this version translated to English for sale in Germany. Unfortunately a vast majority of the current users were in Germany which did little to help sales.



■ Menus within menus. Layout can be very complex, slipping text from one line to another and moving it around leaves it all done from here.

At the end of the day

Despite the legion of features on offer, there's the feeling that Calamus is being complex when there's no need and complexity doesn't always equal quality. It's doubtful whether the convoluted array of menus is really essential; a less complicated method of page layout would have been a benefit. Because of all the icons that must be accessed during page layout tend the lack of keyboard alternatives. It's impossible to use Calamus across the full screen area. Calamus can be made to run on an 40 monitor and this sort of screen is a good investment if your budget can stretch that far.

Calamus is exceptionally slow at times, especially when you run text around different lines. Only one character may reside in memory at any one time, which is restrictive and prevents you cutting and pasting from document to document.

Although Calamus has a modest range of features, a better-considered screen display and a wider range of keyboard would have been worth while.

At the end of the day, Calamus is an extremely expensive package (especially when combined with all the hardware it requires). And, as such, there's the feeling that it should provide

a fantastic area for DTP by being simple to use, having high-quality output, and fast update features. These just aren't delivered. There's hope for the new UK version currently in progress (although the basic operations look unlikely to change). Without a doubt Calamus is superior to current DTP packages – but, considering it's three times as expensive, it's far from three times as good.



■ With the basic layout complete, the next step is to input text. The Calamus text editor is a unique idea and makes text alterations a real pain. Operations may be entered without the screen being redrawn each time.

TA VERY MUCH

Thank you Charles Henry for his criticism in this review.

features

performance

ease of use

multitasking

format value

for

- Extensive layout features
- Social text editor
- First Word and Began protocols supported
- Wide range of printer drivers

against

- Poor manual
- Slow run-around not substantial
- Lots of hardware required for successful use

The Infamous FONTS

■ With a 24-pin dot matrix printer Calamus can achieve some very impressive results

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Computer-aided design gets everywhere these days. Gone are the days when you needed a mega-expensive computer to run the infinitely complex software and a degree in engineering to use it. CAD is even finding its way into games software lately. MARK HIGHAM peers into this elite subject to give you the low down on what CAD's all about and how you can coax your machine into handling it.



GOING MAD WITH CAD

In the beginning life was populated with simple, square, rectangular objects. Rooms and very happy with this - the cars gave a busy role with square wheels - and soon designers were at work trying to make things more complicated. Eventually pencil, paper and the back of envelope just wouldn't do anymore - and CAD was born.

And then there was life

CAD first came into the daylight was back in the early 1960s when IBM installed a SAC console with a lens to visualise the world of design. Before that solid models had to be made up to

represent a scaled-down version of the engineering design required. This was not only a costly approach but any faults in the design had to be adjusted and then a new model commissioned. As a direct result, the time it took to complete this kind of project could often be unreasonable.

When computers were programmed to hold a three-dimensional image in memory, with modifications made possible via keyboard entries, it seemed that engineering design had changed forever. It was at this point that the terms CAD - computer-aided design - and CAM - computer-aided manufacturing - entered their hearts.

The benefits of this type of

approach are phenomenal. The smallest modification can be made on screen and then the new design tested to examine its feasibility. Initially models were still commissioned but at a much later stage in the process. As time passed however, sophisticated programs made it possible for the computer to simulate certain conditions such as weather effects and stress problems so that the CAD image did not need to be turned into a model until the very last minute. The vast majority of car manufacturers now operate like this - no longer producing a model until the computer has simulated the effect of all possible stress points and wind resistance in the design, thus drastically reducing costs.

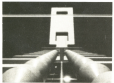
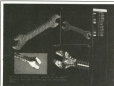
Getting it all in

As the years have rolled by CAD has found its way into many of the smaller microcomputers and even the more expensive minis, such as the ST and Arpa machines.

A variety of data entry methods have been explored from the traditional joystick and data tablet inputs to the more lightpen, mouse and even voice entry modules. Most of the ST and Arpa packages are traditionally regarded as beyond systems and, as such,

SHOW-OFF

CAD/CAM has become such a major field in the computer industry that an annual CAD/CAM show is held. This year the show was at the NEC in Birmingham where representatives from the industry were including robots, printers and even of the most powerful computers around, bought for thousands.



A 3D animation is being used to provide an over-reality of a result as possible. The result is that 3D animation has already found its way into much game software but the real potential lies in creating a walk-through environment where situations and conditions can be imposed on a model and the results viewed even before the design leaves the computer screen to be transferred into a model.

utilize the mouse and keyboard input routines but Commodore's E&C for the Amiga supplies later, an offering approach aimed at the highest market. A graphics tablet can be used as the input device, with the opportunity to define all your own tablet menus.

Colourful CAD

The vast majority of CAD applications still work very much in 2D to produce the kind of image found in architect's drawings. These give views from all sorts of angles but, at the end of the day, are still in a 2D format. When the conversion to 3D solids takes place is in the trip from the architect's machine to the client, 2D designs are all very well but 3D pictures are essential for the experienced plan reader to get a true idea of the actual design. By using a solid modeller the wire-framed images can be filled in to give a much clearer idea of what's going on.

Where these really come into their own is when you're testing a design for use in certain applications. For example, you could design a crane as a 2D sketch, drawing it from the typical architect's orthographic viewpoint. You could then let it go through a solid modeller which would create and fill in the 3D image. You could then try to see if the crane would actually fall over if it was put into use. Rendering is similar to this, on the low end of the market. Packages such as AutoCAD 3D for the ST allow you to colour images and view them as 3D solids from all sorts of angles, but this is not true solid modelling because you cannot examine it as if it were a true solid and apply conditions to the model. Specialist packages already exist which create such a perfect 3D environment that you can even 'walk through' a computer generated image such as a building in real time.

The animation bug

A new range of colour CAD systems are appearing at the high-end of the market which present a kind of Americanized graphical representation of the real world with colour employed across the whole design. This approach provides as realistic a model as possible so that the 2D style radiative green wire-framed images become a thing of the past. The possibilities of realism has led to sophisticated shading routines as well as the emergence of colour. The next step in animation will be a logical one.

Game systems, and specifically designed software have been created in order to take CAD into the realm of animation and some truly interesting visual extravaganzas have been made possible. In the recent CAD/CAM show at Birmingham's NEC, a cinema screen full of a monitor was used to demonstrate the kind of 3D animation being used in the CAD industry. Certain television adverts, specifically car ads, have used the same software for their own purposes.

In the games industry

Some of the finest computer games to emerge over the last few years have made the most of CAD principles to support their gameplay. Some have only used them in their opening sequences but others, such as Dragon's Lair, Powerline and particularly Pentium's FreeSpace range of titles have introduced them into the actual game, offering three-dimensional objects which move and act exactly as if they're composed of all three planes.

A small selection of professional CAD packages has recently appeared in the 32-bit scene to provide you with a way of creating 3D pictures and even introduce them into your own animation routines. These can create short car-



Large format work by showing an image directly onto paper as the output produced is cheaper and can be taken for a higher degree of accuracy but professional CAD is no cheap industry.

[illegible]

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Title	ST	Amiga
RT Type	15.27	16.4
Blitz	17.29	17.29
Thunderbolt	15.27	16.52
Dragon Ninja	N/A	16.59
Major Massacre	N/A	16.37
Techno Cop	15.29	15.29
Warglider 2	17.37	17.37
RA2 Lombard Party	17.37	17.37
Mines	14.26	14.26
Ballistics	13.89	16.88
Out Run	15.27	15.26
Super Ball	17.29	17.29
The Monster	14.26	N/A
486 Storm	16.29	15.29
Poorman	14.26	16.29
Afterburner	15.29	16.4
Juan of Arc	16.29	N/A
Times of Lore	17.36	16.4
Operation Wolf	14.26	17.27
Rail	14.26	14.26
Purple Saturn City	17.29	17.29
Live And Let Die	14.26	14.26
Chuzzle Kid	14.26	14.26
Electric Commander	14.26	17.29
International Soccer	14.27	14.27
Panzer Pigeon	N/A	17.27
Paradise	N/A	20.48
Bombastix	17.29	17.29
Mr. Galt	15.29	15.29
Multiplayer Dealers	14.26	17.29
Scorpio	N/A	17.29
Ball Break	16.29	14.26
Religion	17.29	17.29
S. Thompsons Olympic Challenge	14.26	17.27
Surgeon Master	17.29	17.28
Conquest Lani	17.29	N/A
Conquest Lamp 2	21.82	N/A
Balance of Power	20.80	20.80
Revel of Sooten	N/A	16.80
Center Command	17.29	17.29
Cygnus	17.29	17.29
Flight Sim II	21.29	21.29
Jet	21.29	21.29
Lander	14.26	14.26
Hydra	N/A	17.29
Captain Blood	17.29	17.29
Remedy Approach	17.29	N/A
California Games	N/A	16.29
Time And Motion	14.29	14.29

Title	ST	Average
T. Rutout: New Beginning	14.28	14.28
Festival Director II	14.28	14.28
Maria Whittaker's Omap Ben	11.27	11.27
2008 League under The Sea	14.28	14.28
Barbarian II	14.28	14.28
Platoon	14.28	17.28
Freedom	14.28	14.28
Dollar	17.27	17.27
Horses of the Lance	18.53	18.53
War Wars	14.28	14.28
Empire Strike Back	14.28	14.28
Celestial Chess II	17.28	17.28
Rings Guard Taper	18.58	14.44
P.F.S.	17.27	14.44
Who Framed Roger Rabbit	N/A	18.03
Guardian II	14.28	18.04
Strike Force Hammer	17.28	N/A
Question of Power	14.28	14.28
Goldberg's Domain	14.28	14.28
M.C.G. Pascal	18.41	18.41
Crazy Cars II	14.28	N/A
Captain Jack	11.27	11.27
Festival Manager II	14.28	14.28
Isis	17.28	17.28
Steel	17.28	17.28
Cybernet II	15.28	15.28
Double Dragon	14.28	14.28
Nether World	18.32	18.32
Paradise II	14.28	14.28
Return Revenge	17.27	17.27
Lost and Found: Barbarian		
Defender of the Crown	28.28	28.28
Slam - Crazy Cars, Rampage, Wildcat		
Ultimate Racer	17.27	17.27
Survivor	17.27	17.27
Kings Quest Four	27.73	N/A
Space Quest II	N/A	18.53
Kennedy Approach	N/A	17.28
Krysal	N/A	28.53
Real Greenbustlers	18.89	N/A
Goldrush (ST only)	18.89	N/A
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took animations almost as impressive as some Hollywood films, particularly on the Amiga where a wider range of colours can be employed.

On the ST side one of the most admired CAD packages is Cyber Studio which incorporates the remarkably versatile STTRIO CAD-3D and Cyber Maze. It's been around for some time now but far from being a disadvantage, it's actually a major plus. CAD started life in the engineering world so it's hardly surprising that it's a hard subject to master. Auto have realised this by releasing a whole host of supporting packages designed to make the absolute most out of their CAD programs. Animation novices allow you to take your 3D image, render it, play with it as you wish and even make a variety of different lenses if they're regarded as separate images.

CAD has taken a long time finding its place on the home micro screen. It began as a business application which gave the home user something to play with but it was never intended to be taken seriously. As the sophisticated images began to be filled in the idea of 3D animation evolved and hence the appearance of supporting animation packages for CAD programs.

The way forward?

The future for CAD seems to be very much in creating real world images. Ready robots are being linked to a computer so that as soon as the 3D image has been satisfactorily designed on screen it can be transferred to another package and outputted directly to a robot. The advantage of this is that 3D models may be created as the last step of the process and then they could even be possible for a full-scale design



4. The ultimate in visualisation. The large arenas are obviously a necessity for many of today's CAD applications. This graphics tablet offers the perfect inputting device with output being sent to a graphics laser.

to be sculpted. Robots will, of course, offer the ultimate output because they can create the solid image previously only seen on screen. This is an expensive way of producing output and is likely to stay as the final step in a design but with clients and managers already demanding so many realistic pictures as possible, this seems set to satisfy their intentions. A vast range of printers and

plotters are already being used to draw up architects' plans without the need for a designer to ever take pen to paper, and as a cheap method of subcontracting this it remains the leader.

Increasingly developments are being made into the time-saving field of computer animation so that one day even Donald Duck may make his way into the CAD concert. ■

NEXT MONTH

In next month's ST Amiga Personal Month magazine continues his look at computer-aided design for surveying some of the more popular packages available on the ST and Amiga, including Autodesk's new 3-CAD and the hugely popular ST package, CyberCAD.



4. This robot certainly provides the ultimate output device, turning a 3D computer image in reality. At the moment it's still used very much in a small scale but the future looks set to see a greater commitment to robotic devices.

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CYBER TEXTURE

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A standard Degas or Neochrome format picture can be rescaled around any 3D shape. The result can be imported into CAD-3D. The colours of your original picture are maintained and lighting sources are switched off. Since the result is in the perfect CAD-3D format, it can be treated in the same way as any normal 3D picture.

You must load your Degas or Neochrome file (compressed Degas files are also supported) and select an area of your picture using the rubber band. A limited amount of editing can be performed at this stage. Because of the way that texture works, any black in a picture is assumed to be a background and is ignored in the mapping process.

There is a set of 18 shapes provided to wrap your pictures around as well as an option to design your own simple 3D forms. Unfortunately only small areas of a picture can be used. This necessitates larger memory machines, but can be particularly restrictive on a 520 ST. Obviously the less detail included in a picture, the less memory used.

Wrapping takes a while, and unfortunately there's no way of viewing your design from Cyber Texture, so the file must be saved and then loaded into CAD-3D later. The whole operation takes a while, viewing the result from within CAD-3D is a lengthy process particularly when dealing with complex drawings.

CYBER VIDEO TITLING DISK

£29.95 ■ Colour STs.

This is another recent addition to the busy Cyber stable. Made up of a collection of different files, you can arrange to



■ Cyber Texture in action. Heavy, isn't it?

MICROBOT & CARTOON DESIGN DISK £29.95



The first to wander up the CAD path are Electric's new design disks, - the Microbot and Cartoon Design disks. These feature a range of images which can be manipulated within CAD-3D. They come as sections - for instance head, arms, feet and torso - of a vehicle picture which may be brought together to make up one image or used separately to create something almost as odd as the Gortie - but not quite.

Sections are considered within each file - so you don't need to reselect those once loaded into CAD-3D although light sources should be set to create perfect conditions. There's no way of viewing the disk contents without loading them into CAD-3D but a set of blueprints for each file are provided.

CYBER SCENE

Recently Electric introduced Cyber Sculpt, a sophisticated program to generate CAD-3D compatible images. Now a range of packages are drifting onto the market, all priced under £50, giving users the chance to graze in the tasty field of computer-aided design. MARK HIGHAM investigates.

file your videos with animated scenes particularly useful when used with a Genlock device. 3D forms can be used within Cyber's CAD-3D and then recoloured, pulled, or stretched. You can create a pen to draw your lettering, and even arrange for the Starship Enterprise to zoom into view if you want. Where it falls down is in the complex design

methods. Although you're provided with a complete database of 3D letters allowing you to make up any words you want, handling them is not only tricky but can take hours of work since you need to click for each letter within the CAD package. Largely for this reason it's not intended to be used as a method of adding credits onto videos.

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Back in 1985 Electronic Arts released the art package *Deluxe Paint* to critical acclaim. A year later *Deluxe Paint II* appeared. It did everything that *Deluxe Paint* could offer and more. Version three is really new and it's moved out of the mode of traditional art packages and entered into the



■ Superb results are possible when using the perspective fill routine.

WHAT'S HALFBRITE?

Extra HalfBrite mode is a little on the Amiga that allows it to use all colours in low resolution rather than the usual 32. It only works in one HRA4 clock and modify mode. What you have is two sets of 32 colours, the second set of colours being half the brightness of the first.

DELUXE PAINT III

The long awaited paint package has finally arrived. No longer is it just an art program, however, as you can animate with it too. GARY BARRETT goes in search of Halfbrite Hill with the help of an Amiga, a mouse and the latest drawing tool.

world of animation. This puts it in close contention with other animation software like Gold disk's *Moviemaster* and Ansa's *Jetbone*.

There are three ways that animation can be accomplished: painting

each frame in turn, painting the background through three dimensional space and moving it, and Animapainting.

Painting frame by frame is the tedious method which involves drawing each screen in its entirety and then





cycling through the frames, using the second method you can stop the brush on screen and then step to the next one, repositioning to the last method and the next to use. All you do is start the animator off and then put the brush down as the screen flip. Once you've finished all the frames, you can sit back and watch it go.

I'll have a fill!

Extra huffers display mode is supported, with associated fill and paint modes, to help add some extra colour to your work of art. Shading is much easier to apply in extra huffers and as a result, 3D objects look startlingly convincing.

No longer are you restricted to a standard size screen; you can use all old tricks, to cover in mode. You don't have to put up with borders around your pictures, unless you really want to. In previous versions of Deluxe Paint, the only way to flip the screen either horizontally or vertically was to change the screen into a brush and then flip the brush. There's no need for this, colour in DP Plus a screen flip facility has been provided.

The perspective mode has been extended to include an extra dimension... the third. Brushes can be warped, bent and twisted to your heart's content.



If the image that's opened is a standard screen, the first step in creating an animation script.

Screen perspective can also be used to adjust the shape and size of the brush according to its position on screen. When in perspective mode, the brush changes size as it moves in and out of the screen.

Watch your brush

New tricks can be done with brushes. First, you can switch on auto transparency so when making drawing areas, the background colour is considered transparent and the brush is the shape of the graphic, rather than being rectangular. No more redrawing when you drop a brush into an area of screen.

The brushes can be refined with a single line of pixels if you want to isolate them from the background. The handle on the brush can be moved



■ Filling a circle with wrap off (top)... and doing it with wrap on. Wrapping is another useful addition to Deluxe Paint III. It enables you to fill a shape with a brush in such a way that the final image looks solid. The actual shape and size of the brush are modified according to where they are in the object.

to any corner of the brush, the centre or offset it from the brush in any direction. Being able to move the handle helps in positioning brushes when you're working at the edges of the screen.

Perspective fills are also possible. These makes objects seem solid due to the reduction in size of brushes as the object gets further away from the plane of the screen.



■ The image a few frames later.

Anti-aliasing techniques can be messy, but they do look effective when applied correctly. The problem is that you can often anti-alias over something unintentionally and ruin a picture. DP III has a stencil mode which can be used to protect some of the colours. What this does is only allow you to draw over non-locked colours. Locked colours aren't picked up when you select a brush on screen, but the stencil can be switched on and off easily.

You pay ya money

Although DP III's animation facilities are not as extensive as a pure animation package, the results can look much better because of the very powerful drawing facilities. 3D objects in particular are much easier to draw thanks to brush wrapping.

If you already own Deluxe Paint I and don't want the animation facilities



■ A brush of extra huffers stationary brightens up the world.

from the upgrade price might seem high, but otherwise it's an excellent art package that looks set to sell well. Activation will have to come up with something pretty spectacular if they want Proton Paint 4 to beat this.

■ You may be read about DP's authors.

for

- Excellent brush wrapping facilities
- Easy to do impressive animations
- Full screen mode screens to paint on

against

- Needs 1MB+ memory
- HAM still not supported

UPGRADES

If you already have DP or DP-II and want to upgrade to DP-III, then all you have to do is attach the front cover of the DP or DP-II package and send it to Electronic Arts. The whole lot that you have received some money too (DP with DP or DP-II with DP-II and another 10 to cover cart-rings). Send your money and request card to: Customer Service, Electronic Arts, Langley Business Centre, 11-19 Station Road, Langley, Wiltshire, Berkshire SL3 6JN.

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Dan Silva was born in 1942 in Van Nuys, Southern California. He later moved to Altadena, near Mexico, where he was educated at the local high school. After graduating from high school, Dan went on to study mechanical engineering at Stanford University in California where he gained both a Bachelor's and Master's degree in mechanical engineering.

Dan's interest in computers dated back to the time he spent at Stanford. He used a computer to synthesize kinetic linkages such as robot arms. Like most programmers at that time, he used the computer only as a mathematical tool to take the drudgery out of calculations.

He began to realize the computer's potential for creative applications during his four years at a company called Informatics. During his spare time, Dan wrote an interactive language for displaying mathematical equations in a graphic form.

It was in 1978, when Dan started to work for Xerox, that he learned one of the most important lessons for him personally as a programmer - that of user interface design. Dan feels that many potentially powerful programs are let down by tedious design flaws in their user interface and that many programmers would benefit from taking some form of training in user interface design.

By the time Dan joined Electronic Arts in 1985, he had a clear idea of how his ideal paint package should behave. With this in mind, he started working on *Proton* (an in-house software development tool for graphics artists at EA). *Proton* originally ran on an IBM mainframe, and it wasn't until the release of the Amiga in 1985 that EA realized the potential of *Proton* as a commercial product. *Proton* was eventually launched in November of 1985 as *Deluxe Paint*.

Dan's first impressions of the Amiga was that for the first time a machine was available that really was a multi-media computer; one little box could produce both music, graphics and animation that - although not full-fledged films - was most importantly real-time.

Surprisingly, Dan has no formal training in either animation or artistic techniques. More surprising is that he feels that any training wouldn't have helped him as the more traditional artistic techniques just do not work on a pixel based computer screen. When an artist moves from canvas to computer, they have to completely adapt themselves to the new way of working. In respect to animation, Dan feels that his strong background in the mathematical side of mechanical engineering helped with the complex computations and algorithms involved in 3D animation.

Dan's other interest is in computer based music systems. He uses a Macintosh II computer to control a bank of 8888 keyboards. The more you speak to Dan, the more you realize that synthesizing both music and video is where he wants to direct his talents. He's fascinated by the almost limitless possibilities offered by desktop video. His next program could well be along these lines. Only time will tell what his next project will be written for, but the Amiga's strength in the American desktop video market makes it a strong contender. Dan hopes to treat himself to an Amiga 4850D and video recorder to explore DTV.

Like nearly all EA's products, *DP* was not actually written on an Amiga, but an IBM based software development system. The main bulk of the program was written in C with various sections written in assembler to provide the extra turbo-charging. The code is both compiled and linked on the IBM and is then ported across to the Amiga where it can be run.

What about *Deluxe Paint IV*? Although Dan felt sure that there could be another version, he could not necessarily be the one to program it. Dan admitted that he had grown bored of the *Deluxe Paint* series, and would like to tackle an entirely new project.

JASON HOLBORN fought his way through the London rush hour traffic while avoiding the obvious temptation of nearby Soho to witness the launch and, most importantly, to meet the man responsible for the astounding Deluxe Paint III, Daniel Silva.



DAN AND THE ART OF DPaint

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You've seen animated cartoons in which a character - let's say Bugs Bunny - runs around and interacts with other animated objects. How would you go about doing this? It's not that difficult as long as you plan things out in some detail. And no, you can't have any more bouncing balls. Do you recall the story board tips last month? If you do, then you'll have an idea as to the course of action involved in creating character animations.

Before you embark on your Acid test of Bambi, here is how to overcome some of the more frequently encountered animation obstacles.

Walk cycles

Mastering an effective walk is a great feat. Although difficult to begin with, once achieved it is a technique which you will never forget. The best way to start with a walk is to break it down into its component elements. Walking has two 'beats' which are usually not at times one and one.

Last month I dealt with things walking in arcs and not in straight lines. The walk is a rhythmic pattern. The head and body move through a flattened oval form, in the passing positions the body is raised up. Stand in front of the

mirror and look at what happens when you walk. Your entire body moves up and down. Most animated characters in computer games must have telescopic legs; their bodies follow straight paths. Another point to watch for is the fact that the head and upper body are always forward of the center of balance. This creates a continuous state of imbalance which is converted at the start of a walk into forward motion by your legs. If it wasn't, you would fall over.

The legs are a major part of the walk - and are usually drawn first - but the upper body must also move properly if the animation is to look correct. The arm positions are critical; they must swing in the opposite direction to the legs as they act as a counterbalance. For instance, left leg forward, right arm forward. The arms do not rotate independently either; they are pivoted around the shoulders. When walking, almost every part of the body moves in some direction or other. Even the head bobs in sympathy with the same motion of the walk, it distinguishes character - movement is one of the secrets - and used that for identifying the head and body legs and then rotated the legs and arms as imaginary rickshaws. You can interpret this as meaning things that move in arcs.

should be drawn in curved lines.

Now, time for you to try your hand. Like last month you need to use some graphics and animation software. Cyberpaint (ST) is now available as Zootopia for the Amiga and Spindit II has animation added to its comprehensive features. There are more than suitable for your needs.

Thorn grasping

On with the animation. Figure 1 shows a standard walk with a stick-man version beneath the detailed one. Copy each frame to your animation package. Overlap the position on the screen so that when animated it walks on the spot. Then copy it again - this time add the design to produce the other half of the walk. It's much easier to do simple line drawings, rather than detailed poses, and feed the animation. If you are quite happy with the animation then render (print) your character. The detailed version is still basic; the character has no features or clothes. This reflects the rigidity of conventional animation in which the characters are animated at a whole and the features added later. You can fully render your animation, but you may spend a long time on a short sequence and find that you have succeeded in producing a good looking motion with a poor graphic style.

By changing the animation to reflect a certain type of character. The walk shown is very general and a little mechanical; what is needed is personality. This is where your powers of observation start to come into play. When you go shopping next, pay attention to the walking action of people of different



RHUBARB AND GODFREY

One of the great exponents of character animation is

Bob Godfrey, an Australian home working (really that one up), who is one of the masters of the British animation scene.

His most famous creations include *Richard & Gordon*, *Inspector No. 13*, *Mr. Men*, *Clangers* and *Mr. Potato Head*. You can see more recently through the Cat.

WHO SHRUNK MICKEY'S EARS?

Part two of MARK PICKAVANCE's series on animation. Designing and animating living things this month. Also inside info on Grandson's recently released *Running Man*. ST and Amiga owners, this is the place to let your imagination run riot.



The most famous mouse who kept depressed as a result of his illness are never any realized this in

production of between the result was a after his first ever the gas he liberates the situation,

If you ask an astronomer which library feature he considers to be the most skillfully minimized, the odds are that the answer will be Dumb. In comparison to the time, the effort expending, the Dumb production cost are not as great as most warming.

in 1930 the Disney corporation as pointed out in the large, well organized film production company, in the process relationships between the animation and Walt became strained. The result was a strike in which Walt was locked out of the studio by his own staff. Only the state department among that in its history for a year as American Ambassador saved the situation, in that year the animators were left in their own devices and produced Fantasia. It also had the additional of introducing a large number of films with different subjects than Walt required.



weight, age and sex. They all move in radically different ways. Look at the direction their feet point inwards or outwards, the knee positions and how much they use their arms. Children generally use their arms a great deal and move more vigorously than adults.

THE RUNNING MATH

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The natural progression from a walk is into a run. The graphics in Figure 7 demonstrate this. The examples shown were created for inclusion as sprites in the Running Man game. Because of the game's memory limitations, the sprite run is over eight frames. You may want to insert the "tween" images to spread the run over 10 frames. By observing the sprite, and the skeleton version underneath, you can see that running amplifies the wave motion seen in the walk. In fact, everything that applies to walking can be equally directed to run.

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GILBERT

Dragon Variations ■ ST & Amiga

Gilbert, that crazy uncle who runs the store programmed Gilbert's Dragon and that beast is still the scariest monster. Then, you'll be surprised to see the monster of the moment, the Dragon. He's the best of the best, and he's the best of the best. Without it, he can't get back to Earth and that's how he's back, and the Dragon is the only one to give money for a disgusting alien (they just don't do that sort of thing for anyone).

BIG CHALLENGE

Palace ■ ST & Amiga
£18.95 ■ April

The French record company Delphine Records has recently moved into computer software under the name of Delphine Software. Outside France Palace are handling the marketing of Delphine games and the Challenge is their first release.

It's a multicoloured scrolling shoot-'em-up with over 160 colours on screen at one time on the ST and even more on the pal's things. Included in the game are nine different pieces of music by one of Delphine Records musicians, Jean-Benoît. Perhaps other software houses should consider linking with record companies, if they did then perhaps there'd be less games with tacky tunes playing.

MOONWALKER

Plastic man, Michael Jackson, is making his way from cinema onto computer screens, in Moonwalker. It's based on the successful movie of the same name in which Michael starred.

The story goes that a shooting star passed by and mutated Mick so that he had weird powers of teleportation.

test. During the film Michael Jackson turns into variety of things including a car, a silver robot and a spaceship. In the game, you'll be able to use these for a computer game and use them to defeat that naughty person called Mr Big (who's around doesn't he is Mr Big). Moonwalker is due for release in the autumn.



SCREEN PLAY

PREVIEWS

BOMBER

Action ■ ST & Amiga
£18.95 ■ April

Peter Graham is a company that specialises in 3D graphical games, the first of which was Star Wars appearing under the Danmark label in 1990. Their next game has the working title of Bomber and is a combat flight simulator. 14 different aircraft may be chosen, each with its own handling characteristics and behaviour as the plane itself would. Unlike most flight sims you're not restricted to US planes, there's also European and Soviet planes as well. For a change you can blast away at F-15 Eagles from the cockpit of an Mig 27 Flagger and see Americans taste salt water.

THUNDERBIRDS

Grandstream ■ ST & Amiga
£29.95 ■ Mid April

Five, four, three, two, one... Thunderbirds are go. Those famous puppets from the series are currently making a comeback and this time they're venturing onto the magic of the computer screen. This is Grandstream's first release starring the wooden wonders, whose ailing abilities have been known to rival those of the Computer Street cast - often, other games seem destined to appear over the year following the same vein.

The only thing missing from the game is a wing, it's just not the same when you can't use them.



■ Big Challenge, 160 colours at one time.

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Responsible: ■ **Dr. J. A. Jansz**

SHOCKS BOX

Heading this month's games that got away is *Journey* in the Centre of the Earth. Based on John Hawk's classic novel, it looked great with lots of nice digitised pictures, but somehow failed to pull some game-play in there. Rather lackluster thing, *Journey* it was.



Blood Money 72
Pawson

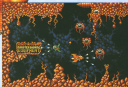
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...attributes on the level these goodies and watch them grow. And I'm in favor of lots of coins, neither is David. But I don't think you wouldn't dream of adding a cheat mode to any future game more games, more would be!



• Looking for treasure? Blood Money says you're going to find it! How may be an excellent time to check up on equipment from the monster (treasure equipment) store.



• How weapons aren't too killed, so make sure you give them a wide berth. Apparently some of them are short sighted though and need glasses. Right? It's an explosion ready.

BLOOD MONEY

PSYGNOSIS

Arriga - Joyntick, Hewitson & D. B. 85.

With one hand hid away on building before suffering his final doom in *Versus* Anniversary, loss in an exciting safari where you either become very rich or die and what do you get? Another game from DMA Design, they of *Moonbase* fame.

You won't be surprised to discover that *Blood Money* is a shoot-em-up with friends, dropping for load and plenty of billion weapons to assist the blasting.



• Level 100, and a treasure chest from his treasure chest out of you.



• But there's not so happy news.

AIM

Good is the driving force behind this game, but then it's always been high on the list in a game where the rewards of our coin are fortune and escape from only death. There are four planets to conquer, each one boasting an entry fee from \$100 to \$400. Choosing the second planet at a cost of \$200 (your initial starting salary) is possible, but you won't be left with any cash to purchase vital extra weapons.

Cash is obtained by shooting hostile planetary inhabitants and collecting the coins they drop. Miss the coins and you lose out on the money. Some aliens are worth more than others but take more shots to destroy.

STRATEGY

You'll encounter four basic types of monsters: blasters, money munchers, stationary and landscape monsters and massive multi-stage creatures. The blasters are in greatest abundance and carry a multitude of shapes and sizes. Money munchers aren't kill you but steal your money instead so should be quickly slain.

GRAPHICS AND SOUND

The loading screen is a wonderful piece of artwork followed by a sequence featuring excellent digitized speech and music as you watch a ship navigate its way through an asteroid belt and then approach a planet.

The game gives you four a choice of sound effects to choose - the former is the better deal. Music is ok, but the Arriga is capable of a wider repertoire. Sound effects are better, but not as good as those in *Moonbase*. If you want to know why then read all about it in the programmer's profile.

Graphically it's in a class of its own with loads of sprites, all of which are beautifully animated. The great alien creatures in the watery planet of Goo are particularly well done. Scrolling in *Blood Money* takes place across an impressive four dimensions proving that DMA certainly know what they're doing when it comes to quality graphics and addictive gameplay.



DMONEY

ST — Jopetick, Available May, \$19.95.

ed. Stationary aliens are at a fixed post on the screen, but usually spin around and cause instant death should you touch them.

Other monsters include the limbo-giant gars who lurk in the corners and are infinitely sticky to kill. Then there are the megalomaniacal creatures who come out of the edges of the screen and have to be avoided if you're not a death addict.

A kind of heavenly ringed look gates that spin and vibrate, other gates which must be opened with the assistance of laser power and bombs that must be shot out of your ship.

Frequently you'll encounter enemy lockers where status can be purchased to improve your firepower. First, the display changes to a selection screen where you can buy any of eight different weapons. Earth and skybound modules increase your firing shots and cover a wider area which dramatically increases your destructive powers. Bombs kill off the enemy quickly, but never gather spinning around like a cat's paw wheel, making it impossible for you to pass.

Rear firing modules help protect your back and long range modules let you knock enemies

out of the way from a safer distance. Speedup gives you the necessary speed to get you out of



A. The bar is the key to your jet packs on the big world of DMoney.

tight spots, but you do lose out in situations where precise maneuverability is required. A force field purchase gives you substantial invulnerability.

One more thing that needs mentioning is the end of level question, a tradition carried over from Menace. There's one to deal with as the final enemy on each planet. Many help are needed to eradicate them and they're armed with enough fire power to tear you apart. Get past the question and you get a healthy cash bonus and return to select another planet.

STATUS
1 2 3 4 5
ARMAMENT
1 2 3 4 5
MANEUVER
1 2 3 4
LASTING POWER
1 2 3 4 5
OVERALL 92%



A. Missing that piece...at the end of level two, or maybe it's just one of his brethren (or sisters).

It may not be an original concept and failed in earlier it's just another shoot'em-up, but that doesn't stop it from being a hugely addictive game that'll keep you looking for months. The two player option offers considerable play which keeps two people happy at once. This game is no usually brilliant and possesses those classic addictive qualities that once you've picked up your joystick you just can't wait to put it back down again. This is arguably the best shoot'em-up on the Amiga to date.

Gary Barnett



CONCLUSION



A kind of laser ring, aimed that alien in the middle and make it orange. Once you're dealt with it you'll have plundered the planet and then choose your next destination in the shoot'em-up select.



David Jones (programmer) and Gary Barnett (graphics developer) from DMG Design, who have spent the last eight months writing DMoney.

The one thing that's lacking (David being in the Amiga) is lack of money. Games have to be written for the bottom of the line machines and there's just not enough money on the Amiga today.

Don't tell anyone else, but DMG's next game promises to be a blast and they will fight them on unusual client option, one that adds money based and puts in the graphics for those out of a creative disposition.

SMITH N. JONES





ARCHIPELAGOS

LOADING

21 - Brown and Boardman, 424-45. Reprinted

Downloaded from <http://ajphaphapublications.sagepub.com/> at 11:00 24 July 2015

Land creation is one of those issues which would solve the problems of the world if only it could be implemented. If you could design a new planet and fill it with islands, you could teleport all the third world countries and live up there and forget about them -- no more Comic Relief or Children in Need has to be a cruel idea.

Well, the Ancients, a group of bearded old men, have returned just that by creating thousands of Archipelagos - smaller islands. Unfortunately a band of vicious pirate ships and populated the place, killing the Ancients and taking over all the Archipelagos. The sailors eventually left, but behind them was the kind of pervasiveness

wildlife that grows around
Ishikawa. Masked booby eggs
turned into eggs, causing a spurt
of thunder to spread these pieces.
Rugby enthusiasts are trying
to eat up the field and, worst of
all, the big players have all gone.

Archipelagos seem now to be expected places with the ability to leap across islands without leaving the ground. The island is being gradually infected by viruses

trees spreading poison all over the place as if they're an environmental rights' lobby armed with a sprayer of mercury. As soon as the wind

STRATEGY

Become infected they turn red and you can no longer step onto them, so the chance to make godly leaps from one side to the other is a major advantage. This effort



4 "This country
grows the food
it needs to eat
it's surrounded
and protected
by mountains
and the island.
It's a natural
barrier to
attack. It's a
natural barrier
to attack."



is Southern United University in the following which makes note of the Evangelical and declares for the United States alone.



is. Finding the answer isn't the hardest of things, especially since they don't appear on the main map.



4. But when they do, individual life's easy enough to destroy them. Just like the rest of them. Never mind.



2. There, totally unharmed, was the only one left standing. The problem really arose when the storm's waves hit the island.

task is achieved by selecting an area of the map and going there. You can't move onto infested land, or back-and-forth since both cause you to die.

Your task is to destroy the skeletons which stand on the victim's claim to the island. These can only be wiped out after you've got them all the giant stones no rubble – easy enough while they're connected to the mainland. Problems arise on later levels where the stones stand on smaller islands, there you accumulate energy to bridge islands to the mainland, only then can you take the stones. When the last stone has been destroyed you have thirty seconds to find the skeleton and sink it.

Just sinking the skeletons would be easy enough if it weren't for the fact that a whole legion of creatures are patrolling the landscape at the same time. Everything from minnows to animals under the trees and they all have some little trick to show you.

The game is arranged so that each level you complete is stored on disk – the next game resumes from your last point. Every fifth island has been specially designed to look like anything from the Castles of Glastonbury. However, the screens in between these are designed more randomly, with about 10,000 progressively difficult levels. It's not a game you'll complete easily.



PROGRAMMERS

The programming team consists of Paul Gough and Ian (Gordon) Paul. ST has been responsible for the graphics and programming of both the ST and Jaguar versions. In all, the game took approximately seven months of programming time and includes a specially designed programming algorithm to create the multitude of different landscapes. Once this was used for the graphics.

The bridge section is a direct port from the ST so looks entirely to utilize any of the clever hardware.



GRAPHICS AND SOUND



Jacks utilizes a fairly small area of the screen and has been filled with hand-drawn sprites which make up the landscape. The aerial pyramid is constructed as a checkerboard type of area with shaded areas filling entire squares.

The graphics certainly won't blow your mind. The all direct obstacles are animated – with such things as flowers going opening and closing – but there's always the feeling that there could have been effectively achieved considering that the ST is graphically a very capable machine.

Despite animated sequences, nothing is particularly smooth. The land masses come towards you in fairly jerky steps. This does little to evoke a sense of achievement. However, the 3D images are effective, from all angles are a visual treat.

Archipelago does not strive to be a stunning visual experience. Where the thrill really lies is in its gameplay. It's a strategy very much in the latter vein as Frederic's Island, when the clock starts and you face a pretty second count down in search of the skeleton, the game really gets exciting. Almost ten thousand different levels have been subtly designed to ensure that even the seasoned gamer will come back for more. The hi-mapped screens add that additional spark of interest.

You learn your own ways of tackling problems, remembering where the obstacles exist and learning which areas of the map have been tried to the main land mass. It's this kind of gameplay which makes Archipelago a very original concept and worthy of a Format Gold.

Mark Higham

NOISE15NOC



4. Oh, yes. Who's this then? The islands are filled with odd characters such as the mouseman who patrols the shores, gobbling up sandy areas as if he hasn't had a decent meal in ages...



4. The rats around changing ordinary land into quicksand which means instant death if you're on the opposite of the hole.



4. Broad eggs, another member of Archipelago's weird wildlife gang, wait for this city to get dark at which point they're struck by lightning. They'll then either retreat the island at phenomenal speeds or start eating the land which isn't good news if you're in the vicinity. (over) The eggs start the fairly innocuous but when the sky changes colour you know you're in for a storm and that's always bad news.



Tlevision is one of those hallowed industries where only the pure can venture onto the silver screen. One whiff of scandal, a breath of drugs or porn scandals and when, you've had it. Just look at Frank Bough. *Running Man* changes all of that by offering criminals an opportunity at superstardom; albeit the pathway can lead towards their maker.

Roaded religiously around the tin, the game was fashioned around a brought onto TV to engage in a battle in the death-squad (the Stakers) all for the viewer's benefit in this modern-day version of *Spartacus*. Ben Richards is a policeman unjustly convicted of murder who now has to compete on the *Running Man* show where his death is all the viewer's want.

The game is similar to watching Tommy Cooper's stage performance with Richards coming up against death and passing away now and again for a commercial break. Deaths range from a gang of branded Stakers in

RUNNING MAN

GRANDSLAM

Amiga - Jagsstick, £39.99.

SE - AmigaSoft, £19.95.

level one to a remarkably violent spree (linger with a fetish for electrocution). Even Richards, a freak passionately into leather, appears outside his motorbike just to make a moment of terror.

Between levels there's a challenging code element where you shuffle a set of icons around one side of the screen to make up the code on the other. If you succeed you can shut down the cameras facing you. With only a minute to spare it's no easy task.



A & level only ends when you've ripped out the main Staker's pants; next on that level. These range from a Japanese looking player with exploding pants to Museum - the latest threat.

A variety of inhuman test beds, makes *Running Man* a shortening game in a different league to the rest. It's astonishingly close to the tin which makes a change from the majority of his one-titled releases. Code cracking between levels with an unusual strategy element to the game, however, graphics and speed could have been improved to give it a far more addictive feel. An opening sequence of brilliant sampled music and digitised pictures isn't enough to sustain your interest when you get into the game. Unfortunately, since the game is only two levels long, the whole thing can get ridiculously hard ridiculously quickly.

Mark Hughes

CONCLUSION

DESIGN 9

ANIMATION 8

SCOREBOARD 9

LASTING INTEREST 8

OVERALL 73%

The five backdrops for each level are colourful enough, but they're severely lacking in detail when you consider the capabilities of an Amiga. Only a small width of the screen is utilised so it's not

always easy to see what's attacking you or the methods used. The action doesn't move particular is quickly when looking is utilised, so the body's movements won't exactly blow your mind - more like full it to sleep.

GRAPHICS AND SOUND



A Staker is captured up by heading down and pressing the fire button. The fire comes in a short box marked with a double red cross. Double from this you can also find bullets on the ground - useful for cutting the living daylight out of your foes.





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4. Hitting a splitter sends balls arcing all over the screen in Psychosis' version of British football.



Ever wondered what goes on down in the depths of hell on a Saturday afternoon? In Britain people watch football at their local ground but in hell they have *Ballistix*. At least that's the impression Psychosis' latest offering seems to convey.

The action takes place on a large, vertically scrolling pitch with goals at either end. Players use the joystick to control an arrowed cursor with an objective to knock the ball into the opposing goal. The arrow itself can't move the ball but by pressing fire you can shoot smaller metal balls to redirect the main one.

There are two modes of operation: one and two player. The former sees the pitch tilted towards your goal so that instead of the usual computer-controlled player

BALLISTIX

PSYCHOSIS - PSYCLARSE

ST - Joystick only. £29.95. Hardware.

Arriva - Out now. £19.95.

is at advantage the wild angle of the game board is what makes the challenge. With two players you battle it out against another human (or demon, depending on who your friends are) and the pitch. There are 50 levels in a one player game and 50 in two player mode.

Early levels offer little to make things too tricky but as you

progress through the game more obstacles are forced in. These include acid pools, bouncers, magnets - roughly the same effect as a magnet on the tiles - troughs and splitters to name a few. Other objects regularly appear on the pitch to either boost your score or provide you with an invaluable shield which does an effective job of protecting your goal.

Ballistix is in some ways like the earlier Psychosis games: Barbarian and Terminator: it looks and sounds excellent, but loses out on gameplay. In the end the gameplay boils down to knocking a ball into a goal - not a major achievement for a 16-bit machine. Producing a game with astonishing sound effects and visuals initially makes it appear attractive but with little game play you'll soon lose interest.

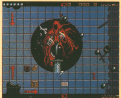
Gary Barrett

CONCLUSION

GRAPHICS AND SOUND

Most of the graphics in Ballistix are static pictures or background scenery and they're all coloured and well-defined. The way that the title screen creates a particularly impressive effect. As far as moving graphics go you have lots of smoothly animated balls flying around the screen and a couple of arrows.

In the sound department there's some good digitised speech although the spot effects used in the game are limited. As is almost always the case the graphics and sound are far better in the Amiga version.



5. The different levels use things getting so difficult that you'll have trouble stopping your eyes from spinning.

GRAPHICS	5
SOUND	5
GAMEPLAY	5
VALUE FOR MONEY	5
OVERALL	64%



ROAD BLASTERS

US GOLD

ST - Mouse, joystick. £14.95. Reviewed.

Arriva - Available soon. £14.95.

US Gold's new Capcom license claims to set you in the ultimate futuristic road race, but it's nowhere near as exciting as a death ride on a hill train. The game takes you across one country after another in a bid to blast your opponents with whatever weaponry you can get hold of.

Special fuel pods become available after being at specific vehicles; you must direct your car towards them to pick them up and reap the rewards. All sorts of additional difficulties emerge in the shape of mines, spikes and gun-turrets. If you're unfortunate enough to become the victim of any of these, you automatically explode and lose one of five lives.

A police occasionally flies over you dropping weapons which you must drive over to reload. These can be attached to the top of your car and do an effective job of wiping out the enemy.

CONCLUSION

It's not a bad first lesson for new racing gamers. Gadrin might have made it into the number one slot, but it's not really that it's terrible. But Road Blasters looks set to change all that, especially since it's coming under US Gold's new £14.95 umbrella. Graphics aren't spectacular - another trade problem - but there's an addictive gameplay there and that's got to be a good omen for the forthcoming Saturn Europe release.

Mark Hughes

STILL 2.0
ARRIVA 2.0
REMARKABLE 2.0
LASTING INTEREST 2.0
OVERALL 50%

GRAPHICS AND SOUND

The movement is jerky, but as a result the game is very fast with smooth corners and the occasional roadside sight. At first glance, Road Blasters seems a competent game - however, it lacks the level of graphical depth to sustain interest for long periods of time. There are no side views of cars and, despite one impressive spin routine, you'll never see your vehicle do any of the great leaps or rolls which exist in many racing games.

Sound is limited to simple spot effects and an awful tune which plays during the truly simply long loading time.



This long-awaited creation by Steve Blak sets you in the role of Jerry Condrage from the hugely popular laser movie of the same name. You're one of the unfortunates trying to stay that way - which makes a change from the usual game. Okay, so Mrs Thatcher's been around for years but who said Jerry was unique?

AIM

Your house has been infested with dog-eaters who are trying to make your death a misery by tossing all sorts of objects at you to distract your

FR

progress. The idea is that you have to run around your house, sticking your teeth into the jagged ends of any dog-eaters you come across. These include everyone from a wrinkled old man to a scantly clad female and drawing their blood simply involves directing their old Jerry up to them while smooching the cushions that they throw at you.

If there's one area that Right Night really excels in then it's the graphics and sound. The opening screen, traditionally more impressive than the actual game, boasts a stunning, digitized picture taken from the Right Night film but the image of the screen is carried through to the end of the game. Then, smoothly animated sprites make up the action. Good old Jerry has a laser-like deep-fat fried hamster tail that all goes to make up the atmosphere. The other characters and a set of slapping hands which erupt through the floor boards have been well-defined and boast a range of great colours.

Aside from the crystalline sound of sampled speech during the opening of the game, there's a selection of other sampled music to accompany the entire playing time. These include such musical extravaganzas as the death march and an eerie rendition of There's No Place Like Home as well as the occasional bawling after a bout of blood-curdling.



It's a good old hairy monster on somebody's popular might seem reminiscent of a little by McDonalds, but it serves the impressive new theme. Another way of increasing your blood count is to return to the gutter but you need to hang around there for some time before your health reaches respectable proportions.





RIGHT NIGHT

MICRODEAL

ST - That's cool, \$39.99.

Genre - \$39.99. Joytech. Reviewed.



1 The worst female with the big breasts sets traps at your health with astonishing speed. In about no time at all you can be reduced to a pitiful wreck.



2 The backdrops of the different rooms offer for each level so that you never get to explore the same level twice.

STRATEGY

The game is one of get "walk through levels" level where you step into a coffin and then either take a trip up the stairs or move into the next room. When you move from room to room the coffin turns to black and then disappears with you at the next location. This often takes place quickly though it is not without being distracting.

After each segment is completed then you must then return to your coffin for regeneration. You can return there at any point in the game if you decide to suffering and you want to recover. But regeneration will take some time if you do it that way. The best method of improving your health is to do a sort of "level" making sure the coffin is in a safe place. If you "forget" all of the coffin is in the hallway then a lot with

some elements have been added to change all that. You have to get back to your coffin before the time runs up.

Additionally, as you progress, then you must a range of "special" features with the singular objective of saving your health at a "horizontal" rate. It's impossible to kill them in the only course of action is to dodge these unfortunate monstrosities.



Despite the truly astounding visuals and a soundtrack that just keeps everything else standing, *Fright Night* lacks the sort of depth to make it addictive for any long periods of time. With the sole objective being to track the blood of all the humans and avoid the attention from the monsters, it's not really the sort of thing likely to tax your brain too much. However it's unusual to take on the role of the bad guy, and with the sort of visual treat on offer it's certain to be a hit.

Mark Hignam



3 Back to the coffin for some healthy regeneration.

CONCLUSION

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JUG

MICRODEAL

ST - £19.95. Mouse, joystick and keyboard.

Amiga - £19.95. Joystick.

The scrolling shoot-em-up that ever-popular brand of game with enough relativity in its dynamics also to rival even a Halfpenny soap. Microdeal's latest addition, **JUG**, takes you into the annals of a perishing planet.

lost in this land, war is only after, all you left eyes on a creature as odd as **JUG**. He's dropped into the long case of Spacious - a planet invaded by a deadly virus which has an instant bid to destroy the brain which keeps Spacous alive. The more sections, those perishing areas devoid of life, are now perishing at the hands of this virus. With four cores, each one subdivided into four sections, it's your duty to res-

cue the planet from annihilation.

By moving your various character through different sections you come across weaponry which may be retrieved. These transform **JUG** into three states, two of which give improved firepower while the third provides a brilliant smart-bomb which obliterates everything in its way.

The way **JUG** wants to move, moving the joystick in the direction you wish to travel. There is no diamond stick because **JUG** moves down when you don't direct him otherwise. Pushing up will decrease your fuel until you run out altogether. When this happens upward movement ceases to be possible until your fuel status has been improved.



4. Microdeal's **JUG** takes you through sixteen different sections in a bid to rid the planet Spacous of a deadly virus. Fuel pods, shown in blue, are scattered around the scene to help keep you afloat. Your fuel levels improve steadily while you're not shooting (200 upwards but for any single upward movement you'll need to find a fuel pod. Failure to do so will see you drifting in life-like *Starliner's* hope - a download and that's one for all.

The alien aren't a particularly impressive bunch. A family of spinning wheels is about the closest you'll get to anything impressive. The aliens look awfully similar to some of the aliens found in *BTZero*: sadly though they lack the colour and size which might have made them electrifying. Birth of colour is a criterion which should be levied at the entire **JUG** scene. Nothing has been explored to the kind of extent possible; even sound lacks those qualities which could have made the game more exciting. Sound effects are limited to a few casual beeps and squeals.

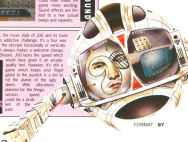
GRAPHICS AND SOUND

TITLE	1	2	3	4	5
ADAPTATION	1	2	3	4	5
SCENE/STAGE	1	2	3	4	5
LASTING IMPRESSION	1	2	3	4	5
OVERALL 72%					



CONCLUSION

Despite its impressive graphics routines, the mass style of **JUG** and its basic shoot-em-up principles certainly make it an additive challenge. It's a fair way writing game so it's certainly nothing like the old-style horizontally or vertically scrolling shoot-em-up games which always makes a welcome change. Unfortunately, like Microdeal's recent *Sip Stream*, **JUG** lacks the speed which would have given it an arcade-quality feel. However, it's still a game which keeps your finger glued to the joystick in a bid to rid the planet of the ugly aliens. With alterations planned for the Amiga version, speed could be a problem of the past.





is the fire bridge. Using the fire button brings out a ball of chain which you can use against persistent offenders. If you depend on it too much then it'll be clipped out of your hand.

VIGILANTE

US GOLD

Amiga - £34.95. Joystick. Reviewed.

ST - Available soon. £34.95

If you thought the only way of transforming mankind into rampant monsters was by dropping the Bomb, and making maling fresh into a fashion trend, then Vigilante

offers you an insight into 1994 New York where absolutely everyone wants to wrap a criminal around your neck.

It has been lovingly converted from the 386 arcade machine

which, unlike the majority of street-fighting games, saw you playing a wage slave. The idea is that in 1994 the street slave - which once made a home in the gutter - have suffered into the

realm of respectable people. Being generally offensive creatures with a penchant for the type of fascist lingo to make their mother think twice about going, they have decided that for Christmas, they have decided a plan to take Mad Max. Even though you're fighting off Sean Penn-style characters, there's no relation to the real Mad Max.

In true 80s-style fashion you move through a scolding back-drop warding off everything from guys with pistols to persistent gun-jacked creatures. A few character misadventures are thrown in for good measure. At the end of each level there's a large boss who must be destroyed to get onto the next stage. The guys take you from the main street, through a junkyard, Broken Bridge and the back streets to a construction zone where Mad Max is wrecked into the air. You must destroy a whole lot of high technology to win here.

GRAPHICS AND SOUND

Graphically, Vigilante bears an astonishing resemblance to its arcade parent. The movement still is smooth as it should be and gameplay flows down when the scrolling starts. However, a wide variety of short gangs keep the pace going so you probably won't notice. Death is one of those inescapable facts. In being a fourth person at the top of the screen lets you know how far away you are from an enemy so you can take the enemy. Instead of dropping down dead your feet tumble off the pavement as if it were a crumbling cliff top.

Vigilante has the usual range of noises accompanying each blow to your torso. Here they've been replaced from the arcade game - however, they're nothing inspiring. To accompany this is some awful boxing music which is certain to have you reaching for the volume control.



A mighty Hulklike one easily made by wiggling the joystick.

Smacking different characters requires you to lay into them at just the right time. The joystick is extremely responsive in the sense you can tackle of your form with relative ease by changing any of eight different movements. Bad positions occur when you're confronted with more than one opponent at a time. You can find yourself gripped at the neck by one of the gun-jacked guys while another is using off your legs.

This is one of the better street-fighting games - certainly it is superior to the likes of Lone Kruger - despite slightly odd accessories. However, in the end it offers little more than a multitude of blood-spattered body blows oblige the agreed street-fighting principle of punch anything that moves until you've been kicked to death.

Mark Hyslop

CONCLUSION



12 SANDPIPER CLOSE, LONGRIDGE PARK, COLCHESTER, ESSEX, CO4 3GF



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Journal of Internal Medicine 247: 395–401

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TIME	CLASS	PROJECT

TOTAL POINTS

[illegible]

Figure 1 illustrates the experimental setup. A subject is seated at a table, looking at a video screen. A camera is positioned above the screen to record the subject's behavior. A light source is positioned to the left of the screen to illuminate the subject's response. A scale bar is provided below the screen for reference. The diagram is labeled with 'Subject', 'Video Screen', 'Camera', 'Light Source', and 'Scale Bar'.

[illegible]

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GAME BUSTERS

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ST On the title screen — where it asks you to insert disk 2 — press the (REUP) key, type "MC" and then press the up arrow. Now insert disk 3 as usual. Press space to begin. Start the game and press the following for various cheats:

- F5 = invulnerability from walls and stars.
- F6 = invulnerability from alien fire.
- F7 = infinite credits.
- F8 = a partner can take control of the ship by using the mouse.

Andrew Clarke
Barnstaple, Essex

HEROES OF THE LANCE

ST Use the 'find traps' spell often as taking hits to tend to severely damage your team. Always go flat first. Galdregon's blood and ferns fourth in your party. During the early stages the only real element in combat should be the battlings; use your 'deflect dragon breath' spell and get 'killed' to the front. Shoot at the battlings' stomach. Five or six well placed arrows will dispose of it.

V (David)
Bedford, Herts

When the heat's on you and you need a rest; when you're beaten blue and you're tired your best; where ya gonna go? Gamebusters! Stay tuned for the latest and greatest gameplaying tips.

GALDREGON'S DOMAIN

ST & Amiga

The secret of solving the game is to find the particular objects which allow you to kill the guardians of the four gates. You should keep your strength and stamina high and only fight if forced to do so. Keep your characteristics on display at all times — objects are just lying around and this is the only way to spot them.

Gate 1: this is guarded by a Lich in Rotten's castle. You need to get the cross from the demon master's tower to kill him.

Gate 2: this is in the caves of doom and is guarded by a rock monster. Kill characters in the cave until you find a diamond. Kill with monster.

Gate 3: in the Catacombs below the temple of Sol. It's guarded by a demon which can only be killed while you carry a



ceremonial dagger. Kill giants in the large room in the East of the temple to find the dagger and a key to unlock the demon's chamber.

Gate 4: at the SW corner of the map is a hidden labyrinth. Enter it and kill Woodrums until you find a key and a mirror. Find the Medusa and kill her to get the

gemstone.

Gate 5: go to the forest of the Elves in the West. Kill the elf lord and take his Elven cloak. Go to the Assassin's tomb in the SE. Find the leader and kill him. Get Gem. Return at low point to the king.

Bill Wright
Manchester

Amiga

When the screens are reversed the moves are reversed.

Dragonage: press fire to kill the tentacles, then up to climb through the hole. Phoenix Room: keep pressing right to go through the door. Maxwell's Room: going left press right to jump the first set, left to jump the second set. Tentacle room: move on right pressing straight away to kill the first tentacle, push forward to jump to the weapons rack, right to jump to the door, back to jump to the stairs, left to jump onto the table, and finally forward to go through the door.

Whirlpools and rapids: first whirlpool an right press left to get past the first whirlpool, right to get past the second, left to get past the third and finally right to get past the last.

Rapids: press left then forward to get past the first screen, forward to get past the second, right then forward to get past the third and then forward to get past the fourth. This is then repeated.

Stone monster:

door on the right push forward to jump to the prison, repeatedly press fire to kill the stone monster and then press right twice to get through the door.

Chaqueboard: Knight's sword on left to avoid the bolts of chaos press right, left, forward, left, right, left, right, and finally fire to kill the black knight.

Rolling Ball: make Oak run each time one of the coloured balls appears. Repeat this for each ball. The wall keep pressing forward to go through the hole in the wall.

Singer's treasure room: loops on the left press left so Oak slides the cups otherwise he will be harassed by Singer; press right and then down to avoid Singer's mouth, and finally press down to catch the column of cups and saucers.

Final encounter: (Singer's head on the left) press down to avoid Singer's hands, then left to see the magic sword. Oak must then dodge Singer's ball three times by pressing down each time. Finally throw the magic sword at Singer by pressing the fire button. You have now completed the game.

Mark Blake
Chalfont St Giles, Bucks



DRAGON'S LAIR



ELITE

Mission 1

The enemy has stolen a government ship. It is called the COB-STRICKER. It's very fast and insulated with an ECM system. Your job is to destroy it, otherwise it will cause havoc in the system. If you complete it you will receive 400 bounty plus when you dock 10,000 credits.

Mission 2

The government have got hold of some documents of thumped mission ships. Your job is to take them to a planet somewhere in the galaxy. As soon as you hyperspace from a place you are both sent to thumpers after the documents. There are two ways of completing this mission, one way is hard the other is almost easy. The hard way is to fight your way across the galaxy or the easy way is to test a route by using tech. levels of it is in over 100 you can hyperspace into a planet's system, then escape capsule at the end. There are about two planets you have to fight your way into. It's hard but can be done. If you complete it you receive a NARC (NARC UNIT) which builds up your energy force so fast and costs down your laser too.

Mission 3

The sun has gone supernova and can blow any minute. The people in the space station want you to save them. If you do it the people give you a gift of flag of Janus Geni (Janus) which are worth about 21075.2 credits. Before starting to save the people a warning appears saying Fuel Low. Don't dock but skate the sun for more fuel and then save the people.

Mission 4

The government has received information of a ship which makes you on board computer go funny. Your job is to destroy the ship, but there's a few problems when you shoot it disappears then reappears somewhere else. It also is insulated with an ECM system so don't bother wrecking it. If you complete it you get 500 bounty.

Simon A Edwards

Brendley, Worcs



EMMANUELLE

ST & Anna

Your first task is to collect the three statues. The first of which is situated in Rio. It can be obtained by clicking on the beach. You will notice a yacht; click on the yacht and a rather nice captain will appear. Tell him you're looking for adventure and he will give you a ticket of admission to the beach. Once done, stay on the beach, and click on the series of buildings nearest the mountains you will enter the Casino. Buy a cigar from the woman with the tray and give it to the blonde sitting at the roulette table. He will take you away and eventually give you a statue. Next go to Houston - which is on the mountain in Rio - and buy the ticket.

Go to Iguala and click on the gift of the materials. You will be treated to a fairly beautiful animation sequence that results in the capture of the second statue. While you're here, it's time for you to lose your virginity! If there's a girl in blue at the reception area then try and chat her up. If you fail, in the next hour, then go to the waterfalls and come back again; continue until you're satisfied.

Now travel to Manaus and tell the doorman that you want to go to the casino house. If he says 'It's closed but I can get you in as a proof', accept. If you travel straight to the open house and you're told the performance is over, keep on trying as your reward is the final statue! Once accomplished, click on the 10 button and wait; you will notice another young floater will appear in the 10. Ask her if she can read between the lines. If she wants if you cook it up, she won't come back this that you will magically transport to a garden party.

There you will see many floater, including the one that you have already (I think) click on her and give her the item at the bottom right corner when prompted. Then tell her how sensual she looks and how all the men have been staring at her! Tell that she will obligingly strip her knickers out of the window and one of your statues will back.

Travel to London and tell the doorman you want to go to the lower town. Hopefully you will see a yacht. If not go back to the hotel and down to the lower town again. It's certain to be there the second time. Now click on the yacht and... surprise, surprise... yet another young floater. She will take you to Rio and give you an enjoyable time on the way. As Rio there will be two floater wrong at you! Click on the left hand girl and chat her up with either a phrase that includes art, music or instruments. Both will be required, but they can come in any order. Accept a naughty sight with her and the other girl will ask to join in (only decent of her).

Once completed you should now have enough statistics to find Emmauelle. But you forgot about her, didn't you? If your statistics is over 75, go to the hotel and try to find the barman. Once found ask him about Emmauelle's next destination. If he doesn't know then you've got

to repeat the procedure. Eventually you will learn out of him the information you require. That done, go to the airport and you'll meet her!

If you're wondering about using the third statue, try chatting up the floater at the reception in Caracas. If you're successful then she might just tell you the room number of a floater you need to see. If she doesn't, which is 99.9% of the time, don't jump in bed with her as it uses vital statistics and energy. If you get the number, then go to the appropriate room and a floater will give you some tips and also a mark. With that mark you will be able to go to the carnival at the top of town where you chat up the girl in the foreground with the mark. If it's raining her you'll have achieved all three things.

A few useful tips: the woman at the reception area in Rio gives you an energy restore and keeps coming back if you don't... you know what. The helicopter serves no use at all other than giving you extra strength in fights, if, at the hotel reception, you ask the man if Emmauelle's staying at the hotel and he gives a room number, visit it for the best... errr, word some in the game! (depending on your point of view).

Simon Hanks

Walsley Garden City, North

THE MALE PRIZES

Emmanuelle is a charitable organisation, all tips are given back to the needy. We want donations to keep us going. In return you get hints and advice. Well, your name in bold and names of the latest games for your money. Send us your tips, maps and jokes.

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This month's winners are: Andrew Clarke for his design on ST-Player (bearing the way are several interesting ST games from Emmanuelle) and giving the game away to Emmanuelle. Bearing design goodies leading to say.



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PD UPDATE

What do you do when your Ferrari Testarossa has a flat, Dirk the Daring and Singe the Dragon have kissed and made up, and WordPerfect doesn't seem so perfect anymore? Take a trip down to the PD libraries of course! Take a trip with JASON HOLBORN and discover the latest and greatest in PD-ware.

AMIGA

All the programs listed within this month's Amiga PD Update were taken from the Free Disk collection of public domain disks. Many of the programs are also available within other libraries, but the disk numbers quoted refer only to the Disk collection.

PLATINUM

ESCAPE FROM JOWI DISK 148

Escape from Jow is an adaptation of the old arcade favorite Lunar Lander with a difference. Instead of trying to land on one of seven planetary surfaces, you've got to fly your aircraft to escape and into deep space before the planet explodes. Sounds easy? Don't be too sure about that, matey, as standing between you and the ultimate safety of space is a hazardous mass of later class.

GF1 is one of the finest PD games available and even manages to give you a bit of the best digitized games a run for their money. The game employs multi-directional smooth scrolling, graphics and sampled sounds to give you that true arcade feel.

its and sampled sounds to give you that true arcade feel.

PLATINUM

TASK CONTROL DISK 95

When the Amiga was first released back in 1985, the machine was hailed as state of the art. Everything that both users and programmers alike had been crying out for for years was there in one little box; the Amiga was a truly a complete multitasking machine.

Not only was the Amiga hardware hailed as state of the art, but the multitasking operating system was greeted with gasps of delight from happy users worldwide. However, after several years of hard use, the Amiga operating system is no longer viewed with such enthusiasm, in fact it probably has more enemies than friends.

The reason for this hostility is the unstable nature of the multitasking executive. Whereas only a few years ago users used to talk about the amount of data that the Amiga could process at one time, these days, the conversation centers around the amount data that can be lost at any one time!

Several very powerful utilities exist

within the public domain to make the Amiga operating system a safer place to work in. The most notable among them include Guard for Multitask to cause hard format cover disks and Task Control.

Task Control is a very handy disk program that will allow you to keep close watch on all tasks currently running in your Amiga. If a program does go out of control, with Task Control you can kill it dead before it can do any serious harm.

Other powerful facilities it offers include the ability to put a task to sleep so that it does not take up any processor time. This can be useful if you are running a program that is very processor intensive such as ray tracing packages.

PATRIOT DISK 130

Programming the Amiga through the system software in a language such as C can be a tiring, tedious and longwinded affair to say the least. Allowing you the most number of tasks requires a large number of data structures (objects

OBJECTS ARE NOT SO MUCH FUN



■ Patriot in action. Just enter your address in the grid and the results are displayed instantly.

AMIGA: BEST OF THE REST

Choosing programs from the vast amount of quality software within the Amiga PD libraries can be a bewildering task. Below is a list of a couple of programs that are well worth checking out.

■ **Guardian** ■ **Disk 154** ■ One of the best PD virus detectors. Guardian sits in the background and monitors various tasks and streams. When you try to boot from a floppy disk, Guardian automatically checks the disk before it can gain control of the machine.

■ **Gauge** ■ **Disk 111** ■ A very handy program that continuously displays system memory usage in a vertical bar graph.



■ Task Control keeping even under control.



to be set up before you even start thinking about the program itself.

With systems software as fast as the Amiga's, it becomes curious as to why a program that many utilities have been willing to take for granted out of the first stage of software development. Probably the most famous program of this genre is Power Windows, a window, requester and gadget editor that generates source code in various languages, that can be pulled straight into your programs.

Pattern is a handy little utility that allows you to design patterns for use with the `SCREEN` macro. All you have to do is draw your pattern in a hand grid and the program then outputs the appropriate system structure in C source code.



ST

The programs listed within this month's ST PD Update were taken from the Floppystop collection of disks and therefore all numbers quoted refer to that library. Many of the programs can also be found in other libraries.

PLATINUM

ST WRITER WORD.07

If there is one single application that has most revolutionised the way we work, it must surely be the word processor. The word processor market is one of the largest in the computer industry and many companies have grown up to serve the public need for more and more complex word processing packages. You'll find virtually every make of computer in existence has at least one word processor available for it, you can even word process on a Sinclair Z80 if you really wanted to.

ST Writer is a word processor written by Atari and placed in the public domain for general distribution. "Public domain word processor" isn't a bit of a cop-out, is it. No, ST Writer is in fact a very powerful little program that includes all the standard functions you'd expect to find in a program of this type, plus a few more besides. From within ST Writer, you can edit your text and



■ Three dimensional graphics made easy with Design 3D.

then perform any number of powerful editing features such as cutting, copying and pasting.

If you need a word processor, but can't afford the likes of Protext, First Word Plus or WordPerfect, then ST Writer is a definite must. The program is fast, powerful and very easy to use (it's also extremely cheap) and is a worthy PD Platinum winner.

FAST COPY 2 UTL.36

Carrying out a straightforward disk copy operation from the desktop isn't quite as straightforward as it should be. In an ideal world, all you should have to do is put your source disk in drive A, your destination disk in drive B and then push the happy drive A icon on top of the icon for drive B.

Unfortunately the Atari systems software programmers obviously thought that would be far too simple in reality, before you can even think about copying a disk, you have to find format and destination disk to the same capacity of your source disk. Why can't you copy a single sided disk onto a double sided disk? Only Atari know the answer to that one!

Fast Copy 2 is a very nicely presented disk copier that will allow you to rapidly backup all those valuable data disks that always seem to attract the droo from your cups of coffee. Also Fast Copy 2's work is a to-copy protected software, such as games, cause that's not morally right just!

If you're in need of a very simple way of backing up disks, then Fast Copy 2's well worth investigating.

DESIGN 3D ART.05

Using three-dimensional graphics at even the simplest level can be a daunting and often frustrating experience for those of us who don't have a degree in matrix transformations. Even so-called professional packages that claim to take the drudgery out of 3D maths, can often reduce you to a state of bewilderment. Copy 3D package must that allows even the most idiotic of people (format staff unless for example) create convincing 3D objects? Is that it?

Design 3D is a very simple little program that allows you to draw an object in two dimensions and then have your creation pulled into the exciting world of the third dimension. Once you've chosen your object, you can rotate it at varying angles and at varying speeds. During this process, your object is displayed in wire frame, but just press the F1 key and Design 3D will turn the current frame into a solid, full colored representation.

Unfortunately, using Design 3D is made slightly more difficult by the fact that no instructions are included. Thankfully, the program is fairly easy to use and so it shouldn't be long before you're creating objects worthy of Starblender 2.

THE SUPPLIERS

In the UK, the following companies are responsible for distribution of ST and Amiga PD software. To find their full addresses, give them a ring or consult the advertising pages.

AMIGA

George Thomson - 07580

234

Ray Barn Farm - 0763

70040

Design PD obtained

Full title - 0750 26089

Purple PD - 0274 30765

ST

ST UK - 0879 757692

The ST Club - 0642 48044

Foodline PD - 0752

20626

FloppyStop PD - 0224

66434

Page 2 - 0750 26036

Subline - 0750 26036

Star UK - 0234 94624

St Club - 0750 48040

ST: BEST OF THE REST

The ST PD libraries are brimming over with quality programs and it's impossible for us to cover all of them in depth within PD Update. Below is a list of programs that didn't quite make it. The disk numbers quoted below refer to the ST UK collection.

■ **PS.10 Post Designer** ■ **Disk Art** ■ A very useful program for all you Star PS.10 printer users. Design fonts and then download them to your PS.10. Should work fine with the LTR.

■ **Storage Before** ■ **Data Grid** ■ A PD classic and a definite must for any discerning PD collector. Storage is a Bouldersun type game that even includes its own screen designer.

ST UK: 0879 757692

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Get to know indirections from postdecrements in the second of our six part series on assembly language. TUBBY FOSTER introduces addressing modes and provides short assembly routines for accessing the screen.

ASSEMBLE YOURSELF

If the word at location 20 contains the number 500, then `MOVE 20,00` places 500 in 00. If you wanted to move the number 20 into 00 then you would have to use a `load PC, 000E #20,00`.

The term "addressing mode" simply refers to the method by which data is found or placed, nothing more. As you have encountered three addressing modes: absolute, direct and immediate. The instruction `MOVE 20,00` is an example of absolute addressing. It loads the word from memory location 20 and stores a direct address into register 00. `MOVE 40000,00` would constitute addressing to find the 20. In this case 20 is said to be immediate data and is held as part of the instruction.

The 68000 provides several powerful addressing modes. Some may look quite complicated, but in fact are just variations on a theme. They are simply methods of finding and saving data. All the 68000 addressing modes are listed here; they will be fully explained in due course. Don't concern yourself with the last one, it may be convenient in some circumstances, but you can write good programs without using it. The examples use the first operand to illustrate the use of the addressing mode.

OPENING ADDRESS

This month's assembly tutorial looks at the instructions you can use to move numbers around in memory. The memory functions where the instructions are stored are called addresses, so addressing is simply the method employed to tell the processor which memory location you wish to look into.

Screen tricks

The computer screen occupies 32000 bytes of memory. It may be cleared by moving 0 into each byte as in the following program:

```

MOVE.LL A0,A0 get address
loop:
  MOVE 42000/255,00 repeat
  32000/255 times
  MOVE 40000/255,00/255 clear 1 byte
  32000/255/255 times clear
  BNE loop repeat until 00
  B 0

```

In the third instruction the byte of immediate data 0 is moved into the memory location pointed to by A0. Then position

HEXADECIMAL NUMBERS

Hexadecimal numbers have digits which take values from 0 to 15. However there isn't a single character for numbers from 10 to 15, the letters A to F are used instead. The base 16 number system is very convenient for programmers since the range of digits fits neatly into a table (4 bits), viz:

Hex	Binary	Decimal
0	0000	0
1	0001	1
2	0010	2
3	0011	3
4	0100	4
5	0101	5
6	0110	6
7	0111	7
8	1000	8
9	1001	9
A	1010	10
B	1011	11
C	1100	12
D	1101	13
E	1110	14
F	1111	15

4 bits may contain numbers in the range 0 to 255 (decimal) or 0 to FF hexadecimal. The name hexadecimal is when referred to as 'hex' for short and the dollar symbol (\$) when used as a prefix denotes a hex number. Similarly the percentage symbol (%) when used as a prefix indicates a binary number.

Hexadecimal numbers are very useful when you're used to share your can immediately add the bit mass they represent - 0000 is 0, 0001 is 1, 0010 is 2, 0011 is 3, 0100 is 4, 0101 is 5, 0110 is 6, 0111 is 7, 1000 is 8, 1001 is 9, 1010 is A, 1011 is B, 1100 is C, 1101 is D, 1110 is E, 1111 is F.

Don't be concerned if you're not fluent in hex, you can easily get by without it. You'll find it grows on you with obvious usage.

comment addressing automatically means A0 to point to the next byte.

The last instruction is called a

conditional branch. It instructs the 68000 to load its PC register with the program address of loop if the Z flag is clear (that is, not equal). Hence, the last three instructions constitute a program loop. 'loop' is known as a label and is merely a word selected by the programmer. It could have been 'dog' or 'fritter', but 'loop' actually conveys some meaning!

The number in 00 initially 32000 is counted down until it reaches zero. BNE loop means branch (jump) to 'loop' while not zero. Note also that a comment may be placed after an instruction on the same line provided a space lies before it.

There are several ways to improve this program. For instance it would be quicker to clear longwords rather than bytes.

```

MOVE.L A0,A0
MOVE 42000/4,004 clear 4
per:
  Compare
  loop:
    MOVE.L 0,004/4 clear 4
  Compare
  BNE 41,004 count down
  BNE loop repeat 17 times
  BNE

```

The 'L' in the third instruction not only ensures that a longword is cleared, but tells the 68000 to increment the A0 register by 4 during postincrement addressing.

It is quicker to write data from a register than as immediate data:

```

MOVE.L A0,00
MOVE 40,00
MOVE 42000/4,01 16x 4
BNE count
loop:
  MOVE.L 00,004/4 clear 4
  Compare
  BNE 41,01 count down
  BNE loop repeat 17 times
  BNE

```

The second instruction in the code given above is an especially fast one provided by the 68000. `MOVEQ` allows immediate

ASSEMBLING WITH HISOFT'S DEVRAC

Two assembly language programs are provided on the disk for you to place at the start and at the end of your programs. You don't need to know what the code does. It will be explained in a later article. This code is held in the file `SOURCE.S` on the Source Subsystem.

Place the [Device] assembly - found on the trace 10 disk - by double clicking on the **DISK10.PAD** icon [27] of the double clicking on the **DISK10** icon [Always] from the trace 11 disk. Select Load from the File [F7] or Project [Always] menu. It opens the simply click on the **DISK10** file. Always owners will have to click on the Input box. You can see the **DISK10** trace on the

Examine the program. Note that instructions are always indented 40 or 80 lines (this leaves room for a label). See elsewhere, there is only one instruction per line, and a comment line starts with an asterisk (*). Instructions may be followed by a comment on the same line (provided a space is left between them).

Associate the code, selected from the Options menu, type `TYPE100` (NT) or `non-float O` (Amiga) and `CODE100` (NT) or `CODE100` (Amiga) in the program's run from the `Start` (NT) or type `non-float O` of the `CL` (Amiga) program. The program simply exits, for use to access `FILE100`.

data from -128 to 127 to be mapped into a state register quickly; all 32 bits are collected.

In fact, it is possible to improve the speed of the program still further. The D8000's designers recognized that people would want to use `loop`, so they created the `D800` instruction. `D800` uses a data register and a label: each time `D800` is encountered, it decrements the contents of the data register and branches to the label if the count is not ≤ -1 . `D800` stops looping at ≤ -1 , rather than 0, for a very good reason. This will be discussed in the future. For now, you can remember to start the `end` and `loop` commands

TURBID FOSTER IN THE EIGHTIES



For Human Resources and Waste Management Information 2

We eventually contracted to employ Todd as a gardener for as long as he could reasonably cultivate vegetables on our land — he is a noncommittal agent. Unfortunately, Todd feels himself bound to fulfil this role in spite of much criticism from ourselves and local farmers, from Bill Marston, the Queen's Guard and other of these ill-considered, and, in fact, entirely unnecessary, royal's noncommittal activities.

Today is currently compiling a CD-ROM entitled *The History of Spending* in the United States. If you, gentle reader, have any material relating to this subject, or other Masonic items, today would like to hear from you.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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This is the most compact way of writing a `clearing` routine. However, we can still increase the speed of the routine by improving the clearing/looping ratio for a routine:

In this case the percentage spends more time viewing the screen than listening.

[illegible]

Always align
code on
columns.
Choose not to be
made between compact
code or slightly longer but
better code.

If you were to try running the last version of code you probably wouldn't see anything because the operating system provides a clear screen. However, by using something like `MSVC++ 4.1.00` or `MSVC++ 5.0.0.2600.0000` as the second instance, you will see the screen in just a color or with stripes. The C++ means "visual-c++" test box. Microsoft techniques that month, in the stripes by experimenting with the 320x240 test screen.

CONFIDENTIAL
DOCS CODE: E

Images of the author's family
are thought not to be related
to the film.

6000 00 1.2.5, you have probably already realized that it isn't technically where it should be, so it isn't actually on the disk at all. However, 6000 00 1.2.5 will be on next month's disk. Ward pointed out that the gear was responsible for these locations over the head with a copy of the *Amiga ROM* Kernel manual.

ASSUMING ADDRESSING MODES

Impacted his comments appear because the data can only come from, or go to, one place (for instance, PITS). PITS takes data from the "black". The black will be dealt with in a future article.

Readback: Data comes from, or goes into, the memory location specified. `MCRR` 3044-3045 is a good example.

Immediately Date is part of the indication. Like MPVE and LDEX. The dash indicates immediate date.

From-Of (Data comes from, or goes into, is top level, **From-Of** is **Of** for example:

indirect An address register points to the address where the data may be found or stored. **MOVW (A),D6**. The parentheses indicate indirect.

Intelligent use of the available information is essential for the success of the project.

pointed to by an address register, but the address register is incremented by the length of the data involved (1, 2, 4 bytes for B, H, and L) after it is used. For instance, `ADD (R0), D0`. The plus (+) sign parenthesizes the value, as mentioned earlier.

Instruction with pre-decrement The address register is first decremented by 1, 2, or 4 bytes (according to *B*, *W*, or *L* operand) before the data is handled. **MOVB** *-(A_n)* demonstrates this. A minus (-) sign before the parentheses determines a pre-decrement.

Indirect with displacement: The data may be found or stored at a 16-bit offset (range -32767 to +32768) from an address register or the PC. `MOVBL R0,AB,CO` for example. The offset is the number before the

2009-10-01

Indirect with index and displacement
The effective address is found by adding the contents of a register (R1 or R2) to the address found in an address register or PC. An eight bit displacement (range -127 to +128) is then added (address register contents are not affected by the instruction). Hence `MOVLE 12345678,R1`. Displacement appears before the parentheses while the data or address register is included after a comma in the parentheses.

Top 5000 provides a great many instructions, and it is worth noting that not all addressing modes are available for these operands. Reference should be made to a hardware manual (one is included with Top 5000).



DESKTOP

Managing your ST can be worse than tackling the accounts department of Barlow Clowes. If you survive long enough to see the dawning of your desktop then there's a whole load of features just ready and waiting. This month Mark Greatrix wins the £30 prize for his tips on reviving your mouse.

ROUGHING IT WITH STOS

An amusing effect employed in Microcabin's Street Drifter is the magnify feature. A few pixels square are blown up using a special mosaic effect so that individual pixels actually occupy a much larger area than usual. It's very similar to taking a small area of the screen and then expanding it using a Degas or Neochrome package. A similar technique to

this can easily be achieved from within STOS.

First copy the screen to a bank - but let's say. Then replace the screen and enlarge it back again. Copy the screen to bank 8 and repeat the process using several different memory banks.

Then you should write a new one back at:

```

00 POB 0-5 10 00
01 Screen copy to 10
02 Screen
03 Bank 8
  
```

This routine can be customised or used in a STOS game. The effects are generally amazing. **A.S. Blackin, Exekington, Sheffield.**

HARD PROBLEMS

Hard disks have this nasty problem which causes them to boot erratically from the hard disk instead of checking the floppy drive for a disk first and then

booting from that. While the practice might not seem to cause too many problems, it prompts very serious faults if you're trying to use AUTO loaders.

In general it's a good idea never to use any AUTO loaders or desktop accessories on a hard disk because, if there's some problem with them which causes your machine to crash, then you won't be able to get to the hard disk in order to fix the problem. This difficulty only serves to support the idea that all hard disk makers ought to be regularly flogged up.

Despite frequent boasts that they are the ultimate way of saving data, they can still crash more regularly than seems at all reasonable. When a hard disk goes down you have to kiss goodbye to at least 20MB of data which can be an extremely heart-rending experience.

Ralph Carr, Hammersmith, London

MOUSE MADNESS

When you squeeze your mouse by his sides and push him up and down the desk only to find that he won't voluntarily budge an inch, don't pick him up by his tail and throw him against an exercise wheel. Some have suggested that he needs a good dose of alcohol to clean off all the dirt, but one of the worst things in the world is a drunken mouse. What you need to do is follow this guide to mouth to mouse manipulation.

- Very carefully remove the ball - this can cause considerable pain to your mouse so be gentle.
- Turn your unit gently follow over and unhook and remove the case. There are a few clips located along three of the sides of the case which must be opened to get access to his stomach.
- Inside you will see two rollers with a disk on each (figure 1).
- Carefully remove these rollers by applying pressure to the small black plastic clips which secure

them into place.

- You'll find that the actual rollers are covered in strange grey matter - obviously the result of some bad digestion problems. Scrape off this material with your fingernail - don't worry, you won't毒le your mouse.
- While the mouse is in pieces give the ball a good clean. This can make a huge difference to the way it grips smooth surfaces.
- Now replace the rollers and reassemble the mouse. Hey presto, your mouse might almost have had a body transplant.



By the way, after about a year of using him you'll find that he can swallow lots of dust. This causes particular problems with the micro-switches which can become an unsympathetic at times that they're almost impossible to use. All you need to do is open up the below and breathe a blast of air inside him. We'll thank you're God and be so grateful afterwards that he'll function without any problems at all.

Mark Greatrix, Cannock, Staffs.

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WORKBENCH

Getting IFFy

One source of confusion for many new Amiga users is the IFF file format and the jargon that surrounds it. "Oh, I know what an IFF file is but what's all this about ILM files and what about ILMs and ILMs files?"

Contrary to what you may think, IFF is not a single file format for pictures. It is in fact just a common method of storing different types of data that was devised jointly by Electronic Arts and Commodore-Amiga in the early days of the Amiga. You'll find all sorts of different types of data stored in IFF format: there's an IFF type for sampled sound, two-dimensional raster images (pictures to you and me), animations, and even music.

Each different IFF type is identified by its own individual four-byte string, called the IFF form. For example, the IFF form for storing pictures is the ILM file and the form for sampled sound is the ILM file. The form of an IFF file is used by programs to identify the particular IFF type before it is loaded. The major IFF forms are as follows:

ILM - Picture files
 ILM - Sampled sound
 ILM - Animations
 ILM - Music scores
 ILM - Text files

Blinking LED!

The hardware designers at Amiga, Inc. certainly got it right when they

Explore the potential of your Amiga with Workbench. Whether it's tips on getting the most from your favourite wordprocessor or how to poke the very depths of Agnes, you'll find them here in abundance plus a lot more besides. This month's £30 winner is John Stanley for his DigView tips.

designed the Amiga hardware. Everything a programmer could possibly want to do could be handled by the hardware: there's hardware sprites, scrolling and even a programmable power light! Programmable "power light"? Yes, that's right, you can even turn the power light on and off under software control! As an example, try creating your Amiga and watch what happens to the power light.

The LED on and off switch is actually controlled through one of the peripheral control bytes in the Amiga CPU which is located in memory at ILM 000000 (hex 12574120). Don't worry about the technicalities, accessing this line is very easy indeed.

The peripheral control byte actually handles not only the power LED, but the mouse and key buttons on a joystick.

Because this byte is multi-purpose, only one bit is allocated to the LED: bit number 2. Programming the LED through Assembler is very straightforward and is achieved by the line

```
LDI.B #0,00000002
```

Unfortunately, achieving the same effect through AmigaBASIC is a little more involved.

```
A = 00000000000000000000000000000000
A = A OR 2
```

The LED control bit is in fact a toggle and therefore to turn the light back on after you've turned it off is just as easy. All you have to do is repeat the same procedure a second time.

Centre of Attention

If you've ever been producing a

video screen display from AmigaBASIC when using any font other than the standard system font, "Topic", then you'll be aware of the problems that can occur. They lie in the fact that the standard system font is not proportional, which means that each character takes up a standard number of pixels on screen height in "topic" mode, which is very convenient when calculating the location of text. The other Amiga fonts such as Garamond, Diamond etc. are proportional which means that each character only takes up the same number of pixels - an 1 is narrower than an m and so on.

Conting text in "topic" font is very easy to do, but what do you do when you are using a personal font such as Ruby? Well, just use the program below.

```
DECLARE FUNCTION TextLine%
OPEN LIBRARY "LIBRARY"
LIBRARY "LIBRARY"
LIBRARY "LIBRARY"
LIBRARY "LIBRARY"
LIBRARY "LIBRARY"
```

```
LIBRARY "LIBRARY"
LIBRARY "LIBRARY"
LIBRARY "LIBRARY"
LIBRARY "LIBRARY"
LIBRARY "LIBRARY"
```

```
LIBRARY "LIBRARY"
LIBRARY "LIBRARY"
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LIBRARY "LIBRARY"
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```
LIBRARY "LIBRARY"
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```

DigView Tips Galore!



Those of you who are lucky enough to own Newtek's excellent DigView Video Digiview will be interested in the following selection of hints and tricks which will allow you to get the most from this powerful addition.

■ If you have a video camera other than that recommended by Newtek, you may have noticed that the filter wheel supplied with Digiview doesn't always manage to completely cover the camera lens. If you do have this problem, it is very easily overcome.

You could replace the Newtek filter wheel with proper photographic colour filters like those manufactured by companies such as Colortec, but these are astronomically expensive. The solution comes in the form of acetate "leak" filters. The filters to look for are the ones that are cut from sheets rather than the pre-molded variety. These can be picked up relatively cheaply and will probably cost you only £1.50 for a set of five different colours. Another advantage of these filters,

apart from their price, is that they are already colour balanced and should in theory produce better results than the official Newtek filter wheel.

■ It is sometimes inconvenient to hold or place a filter between the camera and the subject. By illuminating the subject with light from a 35mm slide projector using transparencies of red, green and blue acetate.

■ If you notice dark or black dots or trails which seem to be fixed to specific areas of your monitor screen while displaying the output from your video camera, don't jump to the conclusion that you have "burn-outs" on the video tape (many second hand cameras have this problem). Uncover the lens and try a photographer's blower brush in case there are bits of dust or hair on the front of the lens.

John Stanley
 Walsaton, Cress



DESIGNER: — EDITOR/WRITER: —
Layout: M.C. / J.D.

PREFACE: PETER MLYNE: 104
1000 1000
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Anytime

What's your Preference?

You all know how much fun customizing your Workbench disk can be. From the Preference program you can define a mouse pointer of any shape, however wide, change the screen colours to helpful shades of pink if you require, and you can even run your nightlight permanently by having interlocking on.

What do you do therefore if you want to use the latter configuration on another boot disk? You could run Preferences on the disk and set everything up from scratch, but that could take an awful long time. However, there is another idea.

Hidden away in the DEVS directory of your Workbench disk is a rather obscure file called `system-configuration`. This file contains all the information about screen colours, shape of your mouse pointer, which pointer you use, etc., and is read by the Amiga when a disk is booted. If the file does not exist, the Amiga reverts to the default settings: blue screen, white text and so on.

If you want to use the set up from one boot disk on another, all you have to do is copy this file across into the DEVS directory of the destination disk. It is as easy as that.

Peter Mlyne
Plymouth

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BEGINNERS' CORNER

In last month's *Beginners' Corner* we took an in-depth look at the various fundamental components of the Amiga's disk operating system, AmigaDOS. We discussed volumes, devices and subdirectories and this month we'll actually start putting some of that theory into practice by getting our hands dirty with a few CLI commands.

This tutorial was written with the single drive Amiga user in mind. If you've got a dual drive system, the theory is not only the same but it is also considerably easier to put into practice. Most of the disk operations are carried out on either your standard Workbench disk that came with your machine or the AmigaDOS RAM drive. Don't worry if you still haven't got Workbench 1.2 either as all the commands will work with both Workbench 1.2 and 1.3 (though not Workbench 1.1).

The first thing we must do is to create a more workable environment for those of you with single drive Amigas. Enter the following commands at the CLI prompt. Don't worry about what they do for the meantime, as we'll explain them eventually.

```
CD "C:\DOS\SYSTEM\CONFIG\HARD" <Press RETURN>
SETX HARD ADD <Press RETURN>
```

The DIR command

Probably the command that you will use most of all during your CLI sessions is the old faithful `DIR` command. If you've used computers based around either CP/M or MS-DOS, then you'll feel instantly at home. The format of the `DIR` command is as follows:

```
DIR <Path Name>
```

The `DIR` command is used to display the files and subdirectories within a specified directory. If you do not specify a directory to be listed, the `DIR` command will automatically display the one that you are currently in. Now let's try it out.

As an example, if you had a disk in drive DFD that contained a subdirectory called `AMIGA` which in turn contained a subdirectory called `AMRS`, to display the contents of the subdirectory `AMRS` you would type:

```
DIR D:\DOS\SYSTEM\CONFIG <Press RETURN>
```

Now that you've seen the format of the `DIR` command, try displaying the contents of the various subdirectories on your Workbench disk. When a directory listing is displayed, all subdirectories within that directory are marked by a <dir> symbol.

Moving around a disk

The next command that you will need to be aware of is `CD`. The `CD` command is used to change your current directory. When you first enter the CLI, your current directory is locked to drive DFD, regardless of what disk you have in that drive. The format of the `CD` command is as follows:

```
CD <Path Name>
```

The `CD` command saves a lot of time typing out full pathnames of files as you can move into the directory they are in. For example, if you wanted to access a file that was held five subdirectories down from your current directory, typing in a path such as `CD\DIR\DIR\DIR\DIR\DIR\DIR` every time you wanted to access that file could soon become tedious in the extreme. In this case, all you would have to do is to enter `CD DIR\DIR\DIR\DIR\DIR\DIR` and you can then access the files held within `DIR5` directly.

If you then removed the disk and inserted a completely different disk, you must tell AmigaDOS that you want the current directory to be this new disk. This is achieved by typing (assuming you have the new disk in the internal drive):

```
CD DFD <Press RETURN>
```

Now for some homework!

You are now completely able to move around the structure of a disk and get a listing of all the files and subdirectories held within specific directories. Well at least you ought to be!

The hard way of getting the hang of something as complicated as AmigaDOS is to play around with it. As an exercise, have a go at roaming around the directory structure of a few of your disks. I'll expect your work in for marking next month!

Next month in *Beginners' Corner* we'll look at a few more of the commonest CLI commands such as `TYPE`, `COPY` and `DELETE`.

Didn't we tell you that learning AmigaDOS could be fun?



■ Moving around the directory tree of a standard Workbench disk. You too could roam and feel within the darker depths of AmigaDOS.

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"This is arguably the best shoot-em-up on the Amiga to date" ST Amiga Format Issue 11
order code ST001

A Special Compilation for Amiga Owners.

Lombard RAC Rally and Pioneer Plague from Mandarin Software. The RRP for each product is \$24.95. But we are offering the two for only £39.90 (a saving of £30!).

Lombard/RAC Rally

Rallying is rather different from normal racing, and Lombard/RAC Rally features a variety of interesting weather from fog to night-driving, together with three stage types, including an impressive mountain track. The object of the rally's 15 stages is to win enough to pay for repairs and keep your car in prime condition. Beating lap-times adds rewards but wealth can be further increased by entering logic games. If you want to race, you must first complete all 15 stages against the clock. You can then complete them all again, but in competition.



them so that they're ready to be colonised. Sounds like a great idea? It might have been. A genetic defect in life IV meant that it so-called creates environmental variety — which is a way of explaining the fact that all the game's planet surfaces look identical — turning everything into a large slab. With the life IV now out of control, it just makes all planet life without testing to see if it's inhabited.

It's up to you to prevent the spread of the Probes. The Lifestar will take you around the Universe but the ship is your attack vehicle. By selecting a planet with Pioneer Probe in the vicinity, the Lifestar will whisk you away to a sub-Buddhist space zone. The quicker you cruise through here the fewer probes you'll need to total when you get to your debilitated planet.

Once a planet has been cleared it's back to the map to select somewhere else. When all planets have been cleared it's over — and better luck next time!

Amiga ONLY
Order Code AM615



Pioneer Plague

The Pioneer Probe life IV was created to solve Earth's over-population problems. It runs around finding uninhabited planets and terra-forming

HISOFT DEVPAC 1

Unleash the power in your machine – teach yourself the fastest programming language there is with **ST Amiga Format** and **HiSoft!**

If you're at all interested in programming your ST or Amiga, you may have read a bit about the different languages you can get. BASIC, C, Pascal... they're all got their fans, but for sheer speed there's only one choice: programming directly in 68000 assembly language.

Starting last month, ST Amiga Format started a six-part tutorial series to show you how to program in Assembly. And the system we've picked to teach you with is HiSoft's Devpac 1 – widely recognised as one of the best assemblers you can learn on.

There was a cut down version on the cover disk for you to get the feel of, but once you decide to get serious we know you'll want to get hold of the full version.

HERE'S WHAT YOU GET

■ HISOFT 'GENAM'

Full screen mouse-driven integrated editor and assembler for preparing your programs. Once you've typed the code in, a simple click of a menu assembles your program to a machine code disk file.

For the convenience, your assembler program can include macros, conditional assembly and any ST or Amiga operating system call.

■ HISOFT 'MOHAM'

Monitoring program to help you debug your programs, where they go wrong, inspect and change any memory location, watch your pro-

gram running and spot errors as they happen.

Once you're happy with a program, it can be run as a simple standalone clickable file, just like any commercial program you buy.

■ EXTRA DISK

With a full version of Devpac 1, all the library files you need to write any ST or Amiga program, and example files to get you going.

■ COMPREHENSIVE MANUAL

150 page ring-bound documentation with full details of using Devpac 1.

Order code (D700).....ST

Order code (D701).....Amiga

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4. Please allow 2-3 weeks in case of temporary shortages.

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 (Homeschoolers)
 (Average)
 (Homeschoolers + Public Schools)

[illegible]

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Inventory	\$0	\$0
Prepaid Expenses	\$0	\$0
Other Current Assets	\$0	\$0
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Non-Current Liabilities	\$0	\$0
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Other Non-Current Liabilities	\$0	\$0
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Retained Earnings	\$0	\$0
Other Equity	\$0	\$0
Total Assets	\$0	\$0
Total Liabilities and Equity	\$0	\$0

Microscopic pictures added (13.03) per: stress





FORMAT LETTERS

*Think of the street cred you'll gain when you show your friends your words of wisdom in print. Think of the glory of owning your very own Format personal organiser if you win the prize letter. Think of something to say and send it to **STUART ANDERTON, Format Letters, 4 Queen Street, Bath Avon BA1 1EJ. Do it now.***

Group action

I am thinking of setting up an Alan ST User's Group, to be called SAGE, but I need to know if any other people with Alan STs are interested in helping me. It will be a self-funding group which will publish a monthly magazine with all the articles written by members of the group.

If anyone is interested please drop me a line.

It would help me if you send a stamped self-addressed envelope and of course most importantly please state down what you would like to see in the magazine and what else you wish the club to offer you. The magazine will only start when the club has enough support and any contributors will be paid a percentage of the profits, which will be low since the club's aim is not to make money but to create a friendly network of ST users all over the country and possibly the world.

Daniel Pullin
3 Beacon Road,
Gloucestershire,
Stratford,
Worcester WR9 0SL,
Greater Manchester

■ Good! Ask with the mag, but don't show anyone ST Amiga Format will you?

Globetrotting problems

HELLO... I have some urgent questions that I need answering.

If I want to buy some Amiga

software in England would it work on an Amiga bought and used in America?

Also, if I want to be given some software for the ST bought in the States would it work on my ST bought and used in England?

I tried the BROSIC program for changing the mouse pointer given in your extremely useful Developer section and was unable to keep the preferred pointer when saving out of BASIC, how do I do this?

A. Fairhead
Lincoln, Lincoln

■ Any software for the Amiga should work fine on both European (PAL) and American (NTSC) Amigas. The only piece of software that will only function on one or the other is ReadySoft's Dragon's Lair which uses very low level internal timings that are different on PAL and NTSC Amigas.

Problems can arise if you try

to use European PAL software on an NTSC resolution Amiga. For example, many European games are written to use the extra 56 vertical lines offered by a PAL resolution machine. Because the American machines do not have this higher resolution, the software, if not written correctly, will not work.

The ST on the other hand, has the same resolution on both European and American machines and therefore these problems will not occur. Almost any software written for the ST should work fine on both American and European STs — the only exception we can think of being Calamus. Calamus checks a piece of code in the ST's ROMs to see if it is running on an American machine or not. If not it won't run — it's a sort of copy protection to stop the importing of "grey" copies of the program into Britain.

Coming clean about the machines

Your magazine seems to be very unbiased. I cannot believe this attitude can be maintained out of print so I would like to know which computers all important Format staff have. But I don't want to see any debating going on I will risk your death with my yet unmade's Volux.

Daniel Gorman
Newbury, Berkshire

■ The Format team have to own up to a bit of a headpodge of machines. Top dog Richard Motters runs an ST Mega4 alongside his Amiga and Amstrad CPC, while disk co-

Why the Amiga wins across the Atlantic

I am an Amiga user and live in Ottawa, Canada. I work in a computer store where we sell the Amiga and the Atari ST. I've read your last two issues. I would have read earlier issues, but Format is only recently available in Canada. Your magazine is the best I've because it gives you the best of both sides and has lots of very interesting articles. Regarding your question "Why is the Amiga more popular in the USA and Canada than the Atari ST?" there are several reasons for this.

The Amiga is more versatile. It has lots of third party support (both hardware and software).

The graphics and sound difference between the two machines.

Not enough software support for the Atari ST from the American software developers.

The Amiga has almost become the video thing standard for its broadcasting in Canada and the United States.

Keep up the good work with your magazine.

Stephen Potvin
Ottawa, Canada

■ Dave Gold has some more light to shed on the popularity of the two machines across the pond on page 18.

It's a fair cop

There is one small thing that is wrong with your magazine! Lastly so often a picture is shown the wrong way up! For example, the picture from Purple Saturn Day in the cover disk section of issue 9.

Andrew Jackson
Liverpool, Merseyside
email is lateral: write to this journal ■

ordinator Jason Holcomb would only swap his Amiga 2000 for the Spectrum for sales in his lockdown. Staff writer Gary Berritt is very even handed — one of each — but games editor Mark Higham only has an ST. New top production editor Stuart Anderton has to add to owning neither machine — a compromise PCAT for him.

So there you have it — totally unbiased

price letter



Pon friends wanted

My complaint is a small one which can be easily rectified. Please start printing the full addresses of contributors in your letters pages. There have been a couple of times when I've wanted to contact fellow ST users to pass on software, ask more detailed questions, etc., but couldn't because of this.

I see no point in printing incomplete addresses, if someone wants their full address withheld for reasons of privacy then they can simply say so in their letter.

Now should this cause space problems, two lines are already allocated for each letter contributor's details, if necessary you could use oblique, as operators and claim in the extra alternative, eg:

Joe Bloggs, 123 High St,
Hampton/Postcode

Barak Peterman
Ayrshire, Scotland

■ If a reader repeatedly writes to be contacted to answer a query or submission, then of course we print their full address, otherwise we assume they want to be left in peace. Editors and art editor would have a fit at any type crammed into two lines.

Come on, big boys

I can't understand why the big business software publishers like Microsoft, WordPerfect, Borland, Ashton Tase etc. don't convert their programs for the ST and Amiga. Converting Macintosh programs to ST versions should be a

piece of cake for them. The ST version of WordPerfect and Microsoft Word are written very badly, so-called professional programs! I mean there are more than a million STs around making a reasonable chance to make some money. The ST is more than just a great games machine!

I have a small tip when you are in the GEM Desktop, when you have a directory of a disk and you want another disk in your drive you don't need to open a new window for a directory, just press ESC and you get a new directory in the same window.

Jay Lee
Glasgow and youest, The Netherlands

■ Unfortunately not many of the millions of ST and Amiga owners can afford the £300 or so equivalent and the rest cost on the PC or Mac, so you get what you pay for.

Just converting programs from the Mac to the ST is no simple business - they may have the same processor but the Mac's weird and wonderful operating system is utterly different.

Spritely progress

I have recently upgraded from a C64 to an Amiga and was wondering if there was any software available that would allow me to create sprites and fonts for use in BASIC programs. On the Extras disk there is an object editor but that is very basic. Because the journal edited, I noticed an advert for an All Animator (page 66 issue 9) for the ST. Is there anything like that available for the Amiga? Also I am toying with the idea of buying PD disks but I'm a bit worried about them being infected with a virus.



"Nope, No vacancies for a galactic mercenary. Have you tried modelling for computer games?"

Do the suppliers, check them before using them?

J Campus
Brentford, Middlesex

■ If you told yourself to Apple's excellent BASIC, then you'll be rewarded with a very handy little program that will let you do are fairly what you require.

Don't be put off the idea of buying PD software just because there is the possibility of picking up a virus; you'll be missing out on one of the best bargains within the computer industry. Most PD suppliers regularly check all the disks for viruses and the chances of picking up a virus are minimal.

Very good, but...

I would like to say that I feel your magazine the best one on the market for the ST and Amiga. I own an Amiga and the things on your cover disk are certainly very useful. Your games section is one of the best I've seen - and it's getting better. The reviews are brilliant and I love all the ready tick-picks. I would buy your magazine especially for the games ones if there wasn't a cover disk - the Dragon's Lair review was fantastic. All my friends agree that your games section is the best.

I think there ought to be a lot more games included and a lot more of them spread across two pages - always the best. Can we have less of all the boring rubbish and serious stuff as well? Anyway, thanks for a great mag.

Maxine James
Bullhall, West Midlands

■ Cheers Marcus, we'll cut down on the boring rubbish right away.

Crib sheet

I had to write to thank you for your section on Comms in issue 6. I found this very central in my project for college related Comms - an Application for Computers - in Communications Systems. I ended up going in a damn good piece of work and learning a lot myself, so I have and am at the top of the list in the bibliography.

Jason Shaw
Leigh-on-Sea, Essex

■ We'd even thought of Comms as a featured journal before - watch out Bibo, here we come!

Another satisfied customer

I have purchased all the issues of ST/Amiga Format and I have had two disks which did not work. In fact they were automated blank disks with a label on. I have returned those and they have been replaced with working copies. My argument is that after having paid for extortionate prices of £2.95 I then have to encounter such mistakes on postage and packing to return those disks. This is not great enough. When they were returned there was no apology or reduction costs.

Should I ever buy the magazine in future and receive a disk that does not work then that will be the last ST/Amiga Format I will ever buy. It's about time you



"Apparently it's essential if you want to do spreadsheet work"



checked all disks properly before they are sent out. It's all right replacing them but not at your readers' expense.

W D Widdie
Widly, Humberdale

■ We make every effort to make sure all the cover disks work, but there are times of thousands of them and it is physically impossible to check them all. Unfortunately, try as we might, there will always be a few disks that won't work.

Jumping for joysticks

I am thinking of buying a colour printer and the article on colour printers in issue 7 was just what I needed. Have you any plans to review joystick, because I need a new one that is hard wearing? My last one was too with the computer, a Nam Delta, but I had only had it for a month when it broke.

There is no way I can play some of my favourite games like *Hy18* (interceptor) or *Speedball* because the drive doesn't does not work.

Also, whenever I use my Cover Disk it loads, but I always get the message: 'Error validating Cover Disk' and I have to swap the Harddisk disk and the Cover Disk in the drive several times before I can use it.

Well, I think the selection of software on the cover disk is amazing. The scenery generator was brilliant and I'm definitely going to get *Purple Saturn Day*.

My father is an engineer and he would like to know whether there are any good CSD packages on the market for the Amiga.

S J Ours
Southbourne, East Sussex

■ I've just bought last month's *Forum* but noticed just the joystick review. You're looking for And point your stick in the direction of page 62 for part one of our CSD feature.

Small spreadsheets

There are a number of good spreadsheet processors for the ST, which one is the best is really determined by the user and the usage. I am quite content with a professional writing utility but need a dictionary and thesaurus, others more confident about their typing and English may take different views.

One of the reasons why the ST

Video nasties

I recently encountered a problem whilst trying to record output from my ST into video.

My intention was to use AmigaMaster (lower disk drive \$5) to create a message to be given from my two sons, which was to be recorded onto the master of the video purchased for his birthday.

A suitable message was created and the ST was duly connected to the video recorder via the service socket. When the recorder and ST were switched on, I was unable to get a picture on the TV screen. I tried to tune one of the channels but to no avail.

Disappointed, I gave up on the idea and a meeting with my

brother-in-law, who is rather clever with computers. He explained a possible reason for my problem.

Computers are generally tuned to transmit on channel 36, i.e. on video recorder. The problem is that the two signals can interfere with each other, resulting in very poor output to the TV. His solution to the problem was simple: rotate the set-top signal from the computer.

Interred in the idea was rotated, and I consulted my ST Owner's Manual which indicated a 1/4" switch on the back panel - great!

Arrang! There wasn't one on my computer, it has a built-in modulator. Not to be deterred, I

looked closely at the back of the video recorder. Bingo! - a tuning screw, a quick tweak of which resulted in loss of picture on the externally connected TV. A spare channel was tuned in to the computer, and Message Master was up and running in no time.

Stick tape was placed over the antiprotect slot and my message was recorded as planned, and broadcast to a unique, personalised pre-recorded film for his birthday.

Graham Cornfield
Walsall, West Midlands

■ Great idea for now period - added my copy of *Frederick's Revenge* by adding scores from *Freightlight* over the boring CDS.



has failed to make a mark in the business market is the lack of a reasonable spreadsheet for the machine (most mags in an office run this type of program). The main reason, obviously, is that it isn't IBM compatible. I purchased HP Professional to enable me to continue working on Lotus 2-2-3 files at home and have come across two major problems: firstly it's too slow because of GEM, and secondly, most significantly for me, the largest spreadsheet I can construct is only extended. I mag, 5000000 is around 150K. This compares with 280K files on a RASIM IBM clone.

D P Robinson
Tosbridge, Kent

■ If you don't need 2-2-3 files probably there are plenty of spreadsheets which let you use the full memory of the machine - and if the ST was your main business machine completely with PCs wouldn't matter.

Sound of mind?

I have found your free disk impressive each month. With regard to issue nine's there was a program called *SPRINKLE*, which I have a question about.

When you type, for example, the word 'HELLO' and press Return, the letters 'HELLO' appear underneath. What does this mean?

R D Smith
Huddersfield, Glos.

■ The program is spelling their words and their way the

worded back to it says (then wait).

Call me

I am utterly bored with all the free BBS I have tapped on to so I decided I would set up my own BBS just for uploading and downloading my PD software. My problem now is finding all my software and hardware to what I need in an ST or Amiga user I have no Amiga who would be happy to help me test my equipment and in return I will download to him or her some great PD software. If you are interested, please phone me after 4pm weekdays on 02421 45332 so we can arrange a time to log on.

Simon Taphin
Cluttonham, Glos

■ No credits please.

Vital question

My dear Commodore Mail always with it Supercomputers Inc.?

A J Herbert
Fifehead, Scotland

■ Ask Jack Farmer

Bugged BASIC

Your most recent issue has raised my flagging interest in Amiga programming. Like many home users I have been searching for a not-too-difficult language to

learn a genuine alternative to AmigaBASIC to write more interesting, reasonably fast, colourful and mostly program.

My choice was the bugridden *AmigaBASIC* 2.0, and I am most grateful to Forum for publishing the address of CSD. (Don't forget, it is the only magazine that has taken note of the plight of second purchasers of the best BBS version for the Amiga.)

John Gilly
Kirkcubrecht, Sussex

■ Glad to be of assistance, Sir.

C on the cheap

The popular computer press say that C is a fairly language to write in. It seems that if Martin Robinson and some Amiga ROMs were written in it. I would like to learn C but have been put off by the prohibitive prices of C compilers - anything from £150 upwards. I am still at school and cannot afford such extreme prices. Is there any way that I can get into C cheaply, about £75 maximum? Surely there must be something in the way of PD software - I don't need to have to be too fast. I only want to experiment.

Fengal Moore
Belfast, Northern Ireland

■ There are several C compilers in the public domain but we haven't had them out yet. I'm checking out *Amiga disk number #110* which includes not only a C compiler but also a 68000 assembler!



Transfer tips

A tip for Atari users wanting to transfer text files from their ST to a PC.

Format a 3.5-inch disk in the PC, then compose your letter/memo using your wordprocessor as normal but save the file in ASCII on to the prepared PC disk — the ST will be assured that this is any different from a normal disk.

The text file can now be loaded into the other WP and will appear perfectly as you composed it except that any features such as italic script or underlining will have been lost.

The process also works the other way round as long as you save the file as ASCII.

This process is also useful for those without printers at home as the Resident files found on PD disks are usually in ASCII and can be 'dragged' on to a prepared disk for printing on the basic expensive laser printer in the office.

I. E. Bowington
New Southgate, London

It's a menace

When I use Message from Postscript as my friend's Amiga, I thought to myself, I have got to get this game! It was forbidden!

There we were, volume full up in stereo, blasting alien sound-effects into speakers. Great fun!

At the Atari 'Star' Show Programme were offering Message and something called Rast for 50 quid. Snapping up this bargain and rushing a home, we parked it front of the computer, loaded Message and our pals just hit the tape. I felt totally and utterly ripped off. The graphics are of eighth standard, the animation is very jerky and the screen layout has totally changed from the Amiga version.

If I had that Brian Watson, who coded the ST version, after loading Message, I would gladly have inserted the disks, packaging and also taken into it...

Bryan Stevens
Andover, Hants

■ No threats of physical violence to programmers, please. And Brian, is he telling the truth? Or write and tell us.

The Irish question

But you've never got a letter from over here.

Question: Why do we hear of about the Amiga (3) and never about the ST one? My 885, 888 version ST one wouldn't be with it. All the Irish like, copy

procedures, and style commands, are there. It's very nice to see.

I will be watching with interest to see if this is the first and only letter from NI to ever appear on your page.

Sean Currie
Co Antrim, Northern Ireland

■ Also, take a look at the previous letter...

Version query

I have been reading in the Amiga dedicated press since at least December, if not before, that all new Amiga 500s are being shipped with workbench V1.3. When I bought mine on 18 February, the computer powered up with the V1.3 screen, but the workbench supplied was V1.2.

I phoned the supplier. However, who said that it was Commodore's policy that all 500s were being shipped with V1.2 workbench and that V1.3 would have to be bought as an upgrade? Somebody's wrong!

Georgie Popkiss
Strathclyde, Scotland

■ After recently purchasing an Amiga 500 from Commodore themselves, the machine was supplied with Workbench and version 1.3. It will probably take a couple

of months before all Amigas come complete with Workbench 1.3.

Something for nothing

Memory upgrades for the ST are not as easy to do as some companies would like you to believe. We have had to tell upgrades that don't work after being misled by these 'cowboys'.

At the moment there are three different types of 0-RAM chips which are used in 512, 256 x 1 bit, 256 x 4 bit, and surface mounted chips. Surface mounted chips need special equipment to fit, and 256 x 4 bit chips are sold at wildly inflated prices, at 256 x 1 bit is the only possible avenue for users who require upgrades.

We have produced an upgrade board which can use either 256 x 1 bit or 1 Mb x 1 bit chips, giving users the option of 1 Mb or 2.5 Mb of RAM.

You can get details by phoning us on 0272 303148.

■ Dennis
Lutcliffe Computing
Preston, Lancs

■ Before everyone else enters in hoping for a free advertisement, you don't stand a chance. At least, not until the Editors at the department have given me their

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DESERT ISLAND DISKS



■ Gary Bracey of Ocean playing *Descent* into *Descent* goes on the desert island - well actually it's in Majesco.

Imagine you're about to be deported on a sun-blasted desert island; you can take your 50¢ of floppy (both, if you own the two machines). 10 items of software and a computer-related luxury item. Don't worry about power sockets - this island comes well equipped. Your real worries are which software files to take along.

The software can be anything from games to serious applications while the luxury item could be a computer disk, a hard disk, or even a subscription to *ST/Amiga Format* (how we're talking - full).

We let Gary Bracey, software development manager at Ocean, in that undesirable position. This, in no particular order, is what he would take and why.

■ **Dungeon Master**, Microsoft: Really fantastic game world. You don't need to be into adventuring to enjoy it.

■ **Barbarian**, Progress: First game that showed off the difference between eight-bit and 16-bit graphics. It's still as playable as when it first appeared.

■ **Gene Sisters**, US Gold: Modeled on Super Mario Brothers (one of the all-time greats) so the conversion was bound to be a classic.

■ **Bubble Bobble**, Enix: Fantastic, rousing conversion of a horribly addictive arcade game. Terrible two-player action.

■ **Operation Wolf**, Ocean: Monster arcade hit which was successfully converted onto 16-bit.

■ **Captain Blood**, Virgin: Great graphics, great sound effects and gameplay. The French certainly know what appeals to gamers.

■ **Korax**, Melbourne House: One of the first - and still the classical - shoot-em-ups to make it on the ST and Amiga. Absolutely superb.

■ **Pinball**, Zenbus: A simple idea well implemented. One of the most addictive puzzle games to appear for a very long time.

■ **Geys Ya**, Mindscape: Classic graphics, adventure game. On track, can anyone help?

■ **Arkadium II**, Imagine: Best shoot-em-up by far - and there have been many.

Gary says: "As I work in computers all day, I look for something that will keep me interested. Mindless entertainment if you like. All the games listed have something going for them. Visual and audio appeal are important to me - you can see that in the games I have chosen. For the luxury item I'd choose a 50Mbyte upgrade (board) for the computer. More and more games require the extra memory."

You now have one person's opinion of what is the best software to take to a desert island. How do you feel? We want to hear about your favorite programs, and why you like them. Send your selection to *SD*, *ST/Amiga Format*, 4 Queen Street, Bath, BA1 2EL.

NEXT MONTH

The June issue of *Format* will be arriving into a newspaper near you on

THURSDAY

MAY 18

Among the outstanding articles waiting for postage in its pages are:

NEW HARDWARE

Every musical instrument you ever wanted to which is now available for under £1000. Also, with microphones, guitars, drum kits, digital notes, keyboards and...

FUTURE PROCESSING

A look at tomorrow's micro-processors (super with a computer) and how they'll be processing work into living things. The next machine you see might be alive!

PIXEL PORNOGRAPHY



Format investigates everything from sexual advances to underground hardcore. Pictorial is an understatement.

PAINT WARS

After *Colour Paint II* comes *Paint Wars II*. A contest to win a design prize (although you should get).

GAMES GALORE

Descent and *Legend* of the Flying Bat are set to challenge all other *Format* Games. There's also *Reptile*, *Medieval*, and *Chivalry* (which is brought up your city - can you resist?). About new products are appearing (and disappearing) constantly for the ST and Amiga, we can't guarantee that everything mentioned here will end up in the magazine, but we can guarantee it'll be there. See you next month.

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